

COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

Weekly Newspaper No. 202 Postage paid at Boston, Mass.

Vol. III No. 1

January 18, 1969

Price 50¢/year

Appeal Warns of 'Thought Control'

WASHINGTON, D.C. — The parenting of computer programs could lead to thought-control, a George Orwell, according to the Patent Office's reasoning for a stay pending of the Prater & Wei case. This is the case in which the Court of Patent Appeals ruled that computer programs could be patented on the grounds that they were "inventive" and "performed mentally and also performed without human intervention were patentable."

In its stay, the Patent Office

(Continued on Page 20)

Precompiler Can Save Users Both Computer Time, Money

WASHINGTON, D.C. — Everyone will now be able to determine the degree to which a given Cobol compiler meets the new government Cobol standards, according to Dr. Grace Hopper of the Navy Project Languages Group.

New Precompiler

A precompiler, written in Cobol, is now available at no cost which will examine the programs and compilers for exceptions to the standard. The precompiler is being released in conjunction with the

newest version of the Navy standards test programs for compilers.

The precompiler includes a Cobol translator, which takes the user to code his Cobol programs in a shorthand notation, and have the translator generate proper source language for the Cobol compiler.

The precompiler provides excellent documentation for managers, describing the function and flow of the program and noting exceptions to standard coding.

Diagnostic. The program produces diagnostics, indicating various types of syntax errors, general logic errors, incorrect usage and undefined functions. It produces a line for line listing showing the translated source language and the error indicators. The diagnostic capability provides an opportunity to reduce the number of compilations necessary to complete the program, thereby reducing the amount of computer time needed.

The net effect of such precompilers could be to speed up overall working efficiency of the programming industry, without sacrificing needed machine and man time. Precompilers have been used successfully in several installations across the country.

New Test Programs

The newest version of the standard test

programs incorporates the ability to test a compiler itself, determine whether it can accept correct source language and whether it will reject incorrect or ambiguous source language.

The programs also test the effectiveness of the compiler code, and determine the areas where errors are detected.

The programs are available by sending a standard computer tape to George M. Baird, Manager of Testing and Evaluation, Navy Project Languages Group, Pentagon, Room 5D-840, Washington, D.C. 20350. Please specify which programs are desired.

CW Takes a Holiday

One of our sharper (or possibly lazier) staff members noticed that there are no Wednesday issues. Since we only printed you 52 papers, and since the first Wednesday, Jan. 1, falls on a holiday, and since we would like to go home for the holidays, we are combining the Jan. 1 and Jan. 8 issues — and taking a few days off!

Happy New Year!

Fast Terminal Handles Up to 4 I/Os at Once

SANTA ANA, Calif. — A high-speed remote terminal system has been announced by Data Computer Systems. The unit, "the first fourth generation remote communication terminal," provides full remote capabilities, including keyboards, card readers, printers, and punches over voice grade lines.

The unit is compatible with all current major computers, using any of three transmission modes, ASCII-8, and FBC-16, and is also able to use any of 16 codes. It uses an MDS memory system, with hardware conversion from format to format with very low failure rate, according to a company spokesman.

The system can read a card, transmit messages, receive messages, print on the printer simultaneously on a four-wire full duplex line, providing extensive over-lap operations.

Data Compression

The system also offers hardware data compression and unpacking without the need for operator intervention, providing drastic reductions in telephone connect time, and cost.

The system, called the CP-4, can be interfaced to any standard modem, providing operating speeds up to 240,000 bits per second.

On the Inside

\$1 Billion 'Gift'
Goes Begging

Page 10

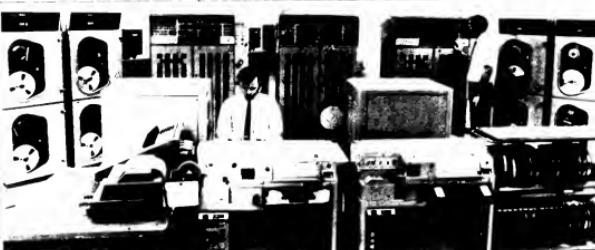
CDC Suit Against IBM
Has Many Ramifications

— 2nd Section

Calendar	8
Careers	19
Comments	18
Editorials	4
EDPromotions	15
Education	8
Expansions	15
Finals	16-17
New Literature	15
New Products	9
Orders and Installations	15
Search Report	5
SNL	8
Special	12-13

The unit can operate with line printers at 115 lpm, or with the new electronic printer at 120 cps. It can handle optical mark sense equipment at 100 cards/min. Teletypes, paper tape, magnetic tape, disks, CRT displays, card readers at 100 cards/min., and any standard terminal, and is suitable for either batched or time shared operation.

The basic system is available for prices ranging from \$29,000 to \$42,500. Lease prices run from \$785/month to \$1100/month.



Typical remote site data processing center for the Apollo 8 mission.

Computers Form Apollo Communications Lifeline

HOUSTON. Live TV from space may have been more spectacular, but the real communications from Apollo 8 were handled by computer.

The communications network consisted of ground, sea, and airborne tracking stations, a central processor at the Goddard Space Flight Center in Greenbelt, Md., and command and communications systems located at Mission Control in Houston.

The 14 ground tracking sites and four Apollo instruments each have a remote site data processing system using a PDP-12 computer. The remote site data processing systems accept, record and transmit data originating from the spacecraft, and compute and issue commands to the spacecraft.

Each tracking station is called a remote site because it is

controlled by Mission Control in Houston. Commands are prestored in the remote site program or are received in real-time from Mission Control.

Sensors in the spacecraft continuously sample the pressure and temperature of the life support system, the atmosphere, and physical factors such as the astronauts' respiration, heart beat, and temperature. The computers can handle up to 200 measurements. The telemetry data is documented by the computer itself, rather than by a special purpose processor that would be doing the general processing.

Messages from the remote sites are sent to Goddard, where they are formatted, checked for validity, automatically assigned a priority, and routed to Houston. Goddard uses multiple Univac 494's.

(Continued on Page 20)

New Tri-Data Tapes Save \$ for Users

MOUNTAIN VIEW, Calif. — A new invention for media error correction in the hard tape drive system is now available for users of PDP computers. The drive contains four separate tapes in two cartridges and the separate tapes can be operated complete or independently according to Tri-Data Corp., the manufacturer.

The unit supports complete plug-to-plug compatibility with PDP equipment using its own hardware for control and read/write logic.

As an either a rack-mounted unit or a desk-top unit, the tape drive provides unusual error correction capability so that at least four dropsouts have to occur before a single bit of data is lost.

The phenomenon data carries information on two parallel tracks with clock cycle information coded as the result of the two tracks. The tracks are effectively complements of each other, therefore nearly eliminating the possibility of an erroneous read or write according to company spokesman.

The unit, called the cartridge, operates at speeds up to 10 ips, a lower speed than the PDP unit, but sells for only \$500 as compared with a price of \$17,650 for the least expensive tape drive. An interface sells for an additional \$200, and permits the installation of the unit on any of the current PDP systems.

The unit can write either 4, 6, 8, or 12 bit words with completely variable record length. At 12 bit word size on 150 foot tape length, each cartridge holds 1.4 million words in 1000 character records.

The unit records at 600 bpi, inch density, and has a manual file-protect switch on the front panel. Data may be read and written simultaneously from different cartridges, providing extensive overlap in operation.

The cartridges are available in three lengths, 50', 100', and 150' at prices of \$14, \$18, and \$21 respectively.



Tri-Data's new CartriFile tape unit installed on a PDP 8/S computer. The unit contains four separate tapes in two cartridges, and can be installed plug-to-plug.

Time Sharing Comparison Report Is Now Available

Special to Computerworld

SANTA MONICA, Calif. — The proceedings of the Nov. 25-27 National Computer Systems' workshop on time sharing and remote PDP services include the 10 copyrighted programs and instructions developed to demonstrate basic capabilities of the system.

The programs were designed by the institute to provide a "first cut" evaluation of time sharing systems by yielding comparative performance data on the following: test parameters, memory size, disk access, and a disk symbolic table, testing of round-trip errors, file creation, file protection, file editing, file access, program development, execution modes, and transmission error rate.

Time Sharing Parameters

The proceedings also include six tables of comparative detail describing other time sharing parameters, such as hardware features, executive control, edit

capabilities, file management capabilities, language capabilities, processing and rate of execution, and system efficiency figures derived from demonstrated performance of benchmark tests.

Printouts of 30 on-line tests are included.

None Systems Tested

Tests were performed on the following systems: Computer Time Sharing Inc. (PDP 11/34), Remote Computing Corp. (VAX 11/780), General Electric Mark II (64, 2654), General Electric Mark II (64, 635), Imsi-share Inc. (SDS 940), Allen Babcock Co. (IBM 360/50 IBM BASIC 360/50), and Quicksilver (PDP 11/34).

The full workshop documentation in two volumes is available for \$100. Orders should be addressed to National Information Research Institute, P.O. Box 3358, Santa Monica, Calif. 90404.

To Buy Stelma Stock

Data Products Selling Informatics Stock

CULVER CITY, Calif. — Data Products Corp. plans to sell its 62.5% ownership of Informatics Inc., California-based software company.

The offering is to be made following the planned 2 for 1 split of Informatics stock. The total offering may be up to 800,000 shares of which 752,000 shares, represent the Data Products holding.

Erwin Tomash, president of Data Products, and proceeds will be used to reduce the company's \$2.5 million short margin on the to-date cash purchase of 40% of the outstanding common stock of Stelma Inc. Stelma is a pro-

ducer of communication equipment and systems based in Stamford, Conn. Tomash said that steps are underway to acquire the balance of Stelma.

In the fiscal year ended March 31, Informatics had sales of \$7,860,284 and net income of \$3,916,885, or \$273,994, or approximately .66% of which was included in Data Products consolidated income and Stelma's net sales were \$32,300 and net income of \$1,785,000.

We believe that the sale of our Informatics' stock and the acquisition of Stelma are in the best interests of both Informatics and Data Products," Tomash said. "The future of Informatics dictates that it be able to use its stock without regard to Data Products ownership requirement of at least 51% for financial consolidation purposes."

"The acquisition of Stelma, when completed, will be very beneficial to Data Products since it broadens the company base and adds to the sales and service, linking both computer and communications technologies in the fast growing market areas of computer terminals, remote access on-line and time sharing."

FCC Tariff Probe May Be Renewed*

WASHINGTON, D.C. — The possibility of a new Federal Communications Commission investigation into some aspects of telephone company interconnection policies has been raised recently by the filing of the Justice Department with the FCC a complaint concerning AT&T's interconnection tariffs.

At least 18 companies and organizations filed with the Justice Department a complaint of all or part of the revised tariffs for the tariffs became effective Jan. 1, is scheduled.

The Justice Department withdrew its previous request for participation in the proceeding on the new tariffs proposed in September, but again called for the FCC to investigate the requirement that network control signaling units be furnished installed and maintained by telephone companies. Justice proposed permitting the new tariffs proposed in October to go into force "even though this means permitting the continued restriction as to network interconnection for what we believe would be the shortest period of time necessary to investigate this issue."

Areas To Be Probed

Areas which the FCC should investigate, the complaint includes: (1) the likely relationship of network control signaling equipment to or whether or not provided by the carriers; (2) the probability that telephone customers would not adequately maintain customer-owned networks; (3) the relationship of the costs flowing from this and (4) the feasibility of a less restrictive arrangement such as a computer system maintenance contract for customer-owned network management.

Reiterating the position it had taken in the FCC's recent computer communications inquiry, Justice asserted that the general prohibition against customer-owned networks was not justified and the decision that such equipment could not be installed on the theory that providing such equipment was an indispensable part of the carriers' service, in the sense that duplicates in providing such equipment could be only acceptable inflation, the agency declared, would be that customer-owned units would affect the telephone company's operations or service.

Others who suggested that data terminals be allowed to have a follow-up FCC investigation included the American Petroleum Institute's Central Committee on Communication Facilities and the National Retail Merchants Association.

ITI Objects

In its comments, ITI stated that the question of whether a telephone company furnished equipment to a user or not must be used for interconnection of terminal equipment or a private communications system with the public telephone system was the only issue left un решен. Noting that ITI manufactured equipment presently is

working with Bell System equipment and "producing precisely the same network control signals." ITI pointed out that AT&T now has assets being used in the Bell System's Strategic Contractors of Automatic Electric's telephones are not compatible with AT&T's central office switching equipment.

Beira Adds His Voice

The Business Equipment Manufacturers Association contended that the tariff revisions filed in October remain less than fully responsive to the needs of the public, including the data processing industry and the maximum beneficial use of telecommunications facilities provided by the communications carriers.

Although some of its previous objections were satisfied by the removal of the prohibition against connection of private communications systems, Beira said it still had a number of specific objections, including one against the provision that an alternative to the network control signaling unit. The association asserted that it is "critically important that in the use of the message toll network by data processors, the data terminals should operate in an alternative manner." Beira also declared that it认为 that unless the AT&T has developed that when an automatic arrangement has been developed it will offer this option to customers. Beira said, it urged "expeditious" use of capability in light of the urgent need of the computer industry."

One of the loudest protests came from Photo Magnetics Systems Inc., of Bellville, Md., and its subsidiary, Computer Telephone Systems Inc. The company filed a formal statement that AT&T's rules by artful misleading, and cleverly contrived language in its proposed revised tariff to retain the same or even stronger controls over so-called foreign attachments."

CSC Contract Is Renewed by Defense Agency

LOS ANGELES — Computer Sciences Corp. has been awarded a one-year extension of its contract to continue the computer-based services it provides to the Defense Communications Agency's National Military Command System Support Center.

The award is the latest in a series of renewals in connection with the agency's mission of technical support to the National Military Command System.

Stewart E. Pidgeon, eastern region vice president of Computer Sciences, told the agency's director that the award brings the total value of the contract to \$8.6 million. The center provides automatic data processing support to the Joint Chiefs of Staff. It maintains files of information furnished by the military services and agencies of the Defense Department.

System Speeds Stock Buys, May Help Eliminate Errors

Special to Computerworld

SAN FRANCISCO. A new offense against the paperwork plaguing stockbrokers is being made by an automated information system installed at the Pacific Coast Stock Exchange (PCSE).

Thomas Phelan, PCSE pres-

ident, explained that the Comex (communication and execution) system will make the exchange the first in the United States whose members can teletype directly to a central computer and receive back confirmation of the executed order.

The system is expected to be in

full use early this year. Initially, Comex will be used to execute odd-lot orders (less than 100 shares). Phelan said, but later the system will be programmed to execute round lot orders.

Error Reduction

Comex reduces the number of steps ordinarily required to place a simple Teletype entry. "When we come in, our work load is eased and their error potential reduced while their order capacity will be greatly increased," Phelan noted.

Comex will allow any members to transact orders either of the exchange trading floors (San Francisco or Los Angeles). The computer complex behind the system will accept the order and execute in accordance with normal handling procedures. It is connected to the member firms' private wire networks, thus making the new service available to each through the single access of his Teletype terminal.

When a broker's order is received, the transaction has been made by the specialist in that stock is automatically and im-



Confirmation of an order executed by the Comex system is discussed by Thomas Phelan, president of the Pacific Coast Exchange, and Richard Gross, a stock specialist.

mediately identified at his post on the trading floor. Simultaneously, the broker who entered the order receives confirmation of

A buy order is transmitted via Comex by Charles Marcus in the New York office of E.F. Hutton & Co. Watching are James T. Gahan and Norman M. Epstein, vice presidents of the brokerage firm.

Communications Network Gets Its First Customer

NEW YORK - Info-Com, Western Union's nationwide shared-use communication network, has been in business for only a few months and is now in operation with inauguration of service for Montgomery Ward.

The service provides each subscriber with a private, computer controlled, communications network at a shared-system savings.

Ward is using Info-Com (Information Communications) to link its Chicago corporate office with 17 Ward facilities coast to coast. The system transmits messages at 100 words a minute.

"The shared-system service gives us the advantage of a private, computer operated system without the expense of having to lease or purchase our own computers, and that makes a big difference," said L.K. Howell, Ward's Corporate Communications Manager.

Service is provided through Western Union's computer center in Chicago. As Info-Com expands, computer centers in New York and San Francisco will also be used. Each center is equipped with two Univac 418 systems.

Sending points prepare messages on a teletypewriter which produces a punched paper tape and hard copy. The tape is inserted in a reader terminal and the message is sent to Western Union's computer center.

The computer selects the terminal on which to deliver the message, checks to be certain it is the correct terminal, and then transmits the message.

At a double check, the computer verifies, by means of an

automatic answer-back, that the right terminal has been reached. Besides communicating with stations on their private Info-Com network, subscribers can use their teleprinters to communicate with Western Union Telex subscribers, to send messages to subscribers of the Bell System's TWX service, and to telegram through Western Union's public message network. All Info-Com stations, regardless of class of service or level of code transmission, can communicate with each other, because of common transmission facilities. In addition, all stations have message retrieval capabilities, two levels of transmission priority, and alternate delivery features.

Info-Com provides three classes of service. Class 1 for heavy volume users operates at 100 wpm over direct satellite links. Class 2, for 100 wpm, is available for medium volume service, has access through shared facilities. Class 3, for low volume at 66 wpm, accesses through Western Union's Telex network.

Consulting - Leasing - Software



EDP RESOURCES INC.
100 Park Avenue, New York 10017
212 686-1122



can help you buy, sell or lease your used computer

Bootho has the only nationwide brokerage service with representatives in 18 U.S. cities, Canada and Europe to provide the most complete lists of equipment available and equipment wanted.

To buy, sell or lease any used make or model of 2nd or 3rd generation computer system or component - call Bootho.

For buyer or seller, Bootho assumes full responsibility for all details and guarantees timely delivery.

INQUIRIES INVITED FROM PRINCIPALS ONLY

Bootho Computer Corporation / Brokerage Division

One Maritime Plaza
San Francisco, CA 94111
Phone (415) 989-6580
TWX 910-372-7802

410 Park Avenue
New York, NY 10022
Phone (212) 524-6242
TWX 710-581-2324

135 South La Salle Street
Chicago, IL 60603
Phone (312) 236-6351
TWX 910-221-5820

6151 West Century Boulevard
Los Angeles, CA 90045
Phone (213) 778-5653
TWX 910-328-6134



REPRESENTATIVES IN OTHER MAJOR U.S. CITIES, CANADA AND EUROPE

Research Report

Subtasking Can Save Both Time and Core

By Peter L. Briggs

Of the IBM Technical Staff

With the constantly upgraded software available from manufacturers today, it becomes increasingly difficult to relate the problems which every user faces in his installation. Every time a new feature is added to the system, the user must analyze its effect on his special problems, his manpower, and his long range planning.

Frequently, the user finds it necessary to spend more time looking at these new features than he does planning for his own installation's expansion. This is true, it is felt, in installations where the system software represents the major bulk of the user's design criteria.

Recently [CW, Dec. 25] IBM announced additional scheduling for next spring to expand the programming and capabilities under DOS for the System 360 line.

The actual changes are described under the category of "subtasking," the capability of running user programs as subsidiary programs to other user programs.

What Is Subtasking?

The name, "subtasking" is self-explanatory. Consider the situation where a supervisor is in charge of a number of subordinates. It is decided that, when this situation occurs, a special exception report should be prepared for management. It

is certainly undesirable to waste the core necessary to build into the program the routines to create this report. It is necessary, however, to handle the problem of passing handling its files, answering questions from remote sources, or other such activities. You don't want to stop the mainline processing of the system just to print out a report. If you do, the subroutine then must be passed into your main program to the subroutine within the report is generated. By using a "subtask," you can effectively multiprogram your report with the mainline. This means that, while the system carries out its normal functions in the main frame while it generates this report.

Thus, subtasking gives the user more room to maneuver his system, reduce his processing waste, and still fulfill his objectives.

When Should You Use It?

Under what conditions will subtasking gain you something? If you have a number of resources for a given program are limited by time, availability of devices, and response time, then this internal multiprogramming can gain you much.

In the case of management, it is just as effective to use a subtask, because there is no absolute time of sufficient priority to demand more resources from the system. In the on-line environment, how-

ever, the availability of devices such as printers, tapes, disks, or console printers is very limited.

With subtasking, the user can have his system work on one task, and let it wait for the specific device, while the main program continues to run. This can actually save you quite a bit of money. The system resources are kept busier, the program spends less time

Some Pertinent Questions

Q. What specific types of systems can use the changes to advantage?

- A. 1. Systems where exception reporting is desirable.
- 2. Message response and terminal handling systems.
- 3. CRT display oriented systems.
- 4. Systems where there are occasional very slow file searches.

Q. What type of users will be affected?

- A. Those users who are using or contemplating online features?

Q. Will changes to existing programs be necessary to use this feature?

- A. Yes. The system must be redesigned to take advantage of this feature. Actual reprogramming might not be significant, however.

Q. Will much training be required to take advantage of this feature?

- A. Quite a bit of training will be needed for program designers, very little for programmers.

Q. Will there be any definite disadvantages to using this feature?

- A. Yes. 1. 2000 bytes of additional core for the supervisor.
- 2. Slightly higher system overhead in operation.

Q. Will there be any significant advantages in using this feature?

- A. Yes. Shorter response times for inquiries and replies.
- 2. Less time for the system spent in the Wait state.
- 3. Less complicated and smaller main programs.

ever, the availability of devices such as printers, tapes, disks, or console printers is very limited.

With subtasking, the user can have his system work on one task, and let it wait for the specific device, while the main program continues to run. This can actually save you quite a bit of money. The system resources are kept busier, the program spends less time

waiting, and a smaller system can sometimes be used than would otherwise be required.

What Does It Cost You?

According to IBM, the overhead for subtasking is about 2000 positions of core. This could well be critical for very small systems (e.g., under 64K) because they are already trying

to save every spare block of core possible. In a larger system, this is probably not critical, because 2K of additional core is a small percentage of the available amount. There will certainly be an operations overhead in running a subtasking machine cycle. This overhead will probably be offset by the overall time saved in running the program.

Letters to the Editor

(Continued from Page 4)

To the Editor:

Praise should be given to University of Michigan's Professor Bernard Galler and the people at IBM's Scientific Center for their very good article on how to use hardware and software to liberate the programmer from the physical limitations of core memory on the IBM 360/67.

However, . . . four months ago we received the Burroughs time sharing machine and have been offering customers the ability to run extremely large programs economically on the B5500.

If credit is to be given for the revolutionary accomplishment, it should be given to the courageous people who explored this concept and made it work in the first place.

James P. Boron
Marketing Staff

Direct Access Computing Corp.
Southfield, Mich.

To the Editor:

We have been offering such services to the public since earlier this year using a time sharing system jointly developed by the Burroughs and Remote Computing Corp. for the B5500. The time sharing system on the B5500 performs quite well using any hardware configuration, over the minimum, with no software modification. We can operate with one or two processors, in contrast to the CMS/67. Further, all compilers automatically segment source programs based

on the logical structure of the particular language using a variable length segment of up to 8K characters.

And economy? A competitive analysis clearly shows that our service is more economical than any one of several established services now available.

The claim of the Computer Software Systems that "it can provide up to 10 times more problem solving power . . . based on the ability to provide extra memory space for users" is highly misleading to the general public.

In the light of these . . . facts, your editorial statements . . . seem a bit out of place, would you not agree?

A. P. Weeks
Manager, Los Angeles Branch
Remote Computing Corp.
Los Angeles

Computerworld did miss the impact of the recent provision of time sharing on the Burroughs 5500—but we did not intend to slight anyone. We yield to no one in our desire to keep our readers up to date on the progress of the Burroughs 5500 series—and we did so as easily as our first issue and as recently as our Dec. 18 issue. Ed.

Memo From Sydney

To the Editor:

I want to congratulate you on the great job you're doing with Computerworld. It is an excellent paper; a real pleasure to read, and very informative es-

specially to my staff and me "down under."

W. J. Finnegan
Branch Manager
Honeywell Pty. Ltd.,
Sydney, Australia

Who's Kidding Who?

To the Editor:

Several recent issues have carried articles concerning the contention between IBM's and the EDP profession. The IBM article, although very significant to the success or failure of systems using PL/I, highlights one of the most basic problems of the EDP field.

The EDP professionals (and I am one) who are using PL/I in the field can't see the forest for the trees. The Cobol controversies are almost as old as the supposedly practical usage of computers to solve business problems. Now we have another programming language, Cobol vs. PL/I. And gloriously on the Cobol vs. PL/I war, the new problem of PL/I vs. PL/II (or whatever).

All this is ludicrous when the truth of the matter is that most of the EDP professionals don't even recognize the reason that the computer was developed. The basic programming problems are not that the compilers won't work. They are not the inability of the compiler to read and code instructions faster using one language than another.

The basic programming problems arise, and remain, and will remain, from the problem of the lack of understanding by EDP

professionals of the basic needs of the business they are supposed to serve. It doesn't make a damn bit of difference how long as the results are profitable (remember, word?) to the business using the computer. If we used the same criteria to evaluate EDP installations as manufacturers, say, did to evaluate their products, we would soon find out how many installations would remain? Yet, isn't this the type of test we should apply?

Until the EDP profession recognizes the fact that intensive training is required in the partic-

ular business problems that require solutions before intensive training can begin, articles, seminars, etc. on PL/I, Cobol, Bosph, and many others, are just so much garbage.

We people in our profession who can recognize and use this knowledge are few and far between. Until we develop these people, we're kidding ourselves about our "contributions" to the business world.

H. B. Dawson
Systems Analyst
Union Steel Products Co.
Albion, Mich.

TLW Computerworld Corner

INDUSTRY Construction

Food

Manufacturing

Banking

Banking

Utility

Rail

Automotive

Chemical

Electronics

Textile

Plastics

Metals

Leather

</

Editorial

The Year of the Threshold... 1968 Was Only a Beginning

The year 1968 has gone, but we are still greatly affected by its happenings, many of which are as yet undigested. Like every year, it was revolutionary. Unlike other years, however, the revolution could be seen only as a threshold to the outcome of specific developments.

There have been few other threshold years in the short history of computers. For instance, 1964 saw the introduction of the IBM 360 and the production and installation of the Honeywell Series 200. But at the end of the year the situation was only a difference in degree. So 1964 was not a threshold year.

But 1968 was. The year opened with a well-structured industry. Hardware, software with its operating systems, telecommunications, real-time systems — each had their own disciplines. Time sharing held its promise for the future. And many people in the country were able to follow developments.

As the year ended, we had an industry which stood on the verge of confusion. Most of its basic structural pillars were crumbling, and vigorous new blood, without a "me too" attitude, was entering many areas. It was possible to comprehend implications of not more than a section of the industry.

1968 a Precedent

Similarly, at the start of 1968, almost everyone in the industry and everyone else. If not by name, certainly we knew their installations. Computer, personal things, and the vagaries and sheer stubbornness of some of them were as well known in the community as the features of Bette Davis or Cary Grant. When the year ended, it was clear that this group familiarity was gone forever. The advent of more and more computers limited most of us to the level of a single manufacturer's user group. We lost something which presumably we shall never regain.

But we gained something — new strength, an independence of outlook, an appreciation of both our importance and unimportance in the scheme of things. We saw the sciences and businesses beginning to realize that computers lead to new and necessary advances and were no longer simply in the field of research. We lost some of our comforts, but we gained in maturity.

1969 Prospects

With the approach of 1969 we have a similar loss, and hopefully a similar gain, in the confusion that has followed the Carterfone decision, which is opening telephone networks to much wider operations; in the proliferation of disk pack manufacturers; in the threat of a price war; in the decision of IBM to change its marketing methods; and in the ignorance of not knowing what those new developments will be.

There has been a loss of understanding, a loss of quick comprehension of the impact of any particular item. Walking around the exhibit area of the Fall Joint Computer Conference in San Francisco, one heard many people comment, "There's just too much. I can't take it all in." Those who previously had a good grasp of what was going on throughout the industry were looking at new products but seemed unable to integrate them. No longer was there a oneness to the industry.

The Gain

Against this loss there was an equal, or greater gain. While observers were unable to take in the whole industry, they were excited about those parts they were still following. Where previously they had one or two opportunities, now they had seven or eight, and were discovering the truth of the poet's words, "What can they know of England who only England know." They were realizing for the first time elementary points about the input they were trying to get into their systems — simply because they had been trying to decide on the best keying input method, trying to

choose between optical character recognition and the many different key-to-tape systems being offered during the year. They were beginning to realize the impact of errors that were springing from the system, and the opportunity of minimizing them, through being careful in the choice of systems to minimize them.

Mundane Points

If there was any common ground, perhaps it was best brought out by William C. Norris, chairman of Control Data Corp., in an address to a group of security analysts. Norris did not omit the glamor of the super scale computer that his company produces, but he gave even more attention to supposedly mundane items such as effective air conditioning and cooling systems, generators, reliability, and availability. These were the items he found of prime interest.

No longer was the question: "Can I do this within the price I am prepared to pay?" The question had now become: "Of the number of ways available to me within my price budget, which is the best?" It often occurred that the answer was to be found at the man/machine interface with emphasis on quick and easy recognition and elimination of errors. It was the mundane aspects of a console, the positioning of the working areas for a console, the design of a type of face, or the phrasing of a dialog, turned out to be the critical element.

Back to Nitty Gritties?

This is a real threshold. Its implications for the future are not known. It certainly means that we have to cope with a great deal more data than ever before (and, goodness knows, it was already a flood). We have to get into the nitty gritties of areas we thought had been left behind in 1967, when we came out of operations research. We have to face the inevitable reorganization, redistributions of tasks, and rebudgeting that will be necessary to cope with our job requirements.

Unknown Future

We must do this in a comparatively non-structured market. So many things are still up in the air. Who knows what will be the position on the patent question, on privacy, on data banks, on communications, to name a few? Where and who will be our colleagues in the field? More importantly, what education will they need? How much will they cost, and what are the promotion prospects we can offer to make their careers, not merely that overworked word "challenging" but productive for both parties? Who knows what scandals will develop from the misuse of computers and from amazeballings and other civic misdeeds?

We do not know, and yet we must be prepared. This is what we are paid to do. Anyone in a young industry must expect the unexpected. The challenge is to move forward, to comprehend any situation, to see what is best for ourselves and for our employees, to determine how to use the resources made available to us to their maximum capacity, to see that our social responsibilities are not ignored, and to see that we do not impede the productivity of our systems.

We Must Communicate

Above all, we must communicate effectively with those around us so that as we begin the year 1969 we are fully prepared for the future. We will have to break many guidelines, make many new rules, set up new departments, new disciplines, and take on new responsibilities. The new year, 1969, will be quite a year, and Computerworld sincerely wishes all members of the computer and ancillary professions a heartfelt wish that it be a happy one. — A.T.

IBM Separate Pricing Was Year's Top Story

The Big Daddy story of 1968 may well turn out to be Control Data's antitrust suit against IBM. But at this point, it's probably safe to say that the IBM suit against the other major events of the year, as it has been left out of Computerworld's selection of the Top 10 stories of 1968.

The other stories, as rated in importance by CW's editors, are as follows:

1. IBM announces it will change its pricing policies by July 1, broadly indicating it will begin charging for at least some software.
2. The General Services Administration begins modifying its procurement practices as a result of the controversy over PL/I.
3. The first software patent is issued and the Court of Patent Appeals rules that software is patentable.
4. Cobol is adopted as a standard by the USAF and then the Defense Department.
5. The Rubey Report on PL/I is released.
6. The foreign attachments tariffs are ruled unlawful by the International Trade Commission.
7. Computers make a poor showing in handling presidential election results.
8. Questions arise as to who is covered by, and who will enforce, the ethical guidelines of the Association for Computing Machinery.
9. A jury awards damages against IBM in a user suit over computer reliability and support.
10. A \$39 per month data processing system is announced by Vatron.

IBM Announcement Came as Surprise

On Dec. 6 IBM sent waves through the computer world by announcing that it was contemplating a study "to determine what support services should be separately offered and priced" and that "no later than July 1, 1969," it expects to "make changes in the way it charges for hardware and software" and its "support equipment."

Suddenly all the debates over the effects of separate pricing for hardware and software ceased to be academic. Suddenly it was not "what would happen," it was "what will happen?"

Coin Has Two Sides

Separate pricing advocates have maintained that IBM will sell less, possibly as much as 15-20%, and that this extra money will pour into the independent software houses "because they write better stuff anyhow." But others have learned that IBM already has a "good market" (virtually the world), "may be able to sell its software for less than the independent, because of its huge number of users."

Industry sources speculate that IBM will continue to supply free the software, such as operating systems, fundamental to the operation of its systems but will charge for applications software.

Back at the Ranch

Meanwhile, the users are staving a bit. Although rental users probably will not be affected, owners and third party lessors could find themselves paying for services that formerly were free.

The egg has been laid, but it may not hatch for another six months.

2) Phase II — And After

Last January, the Air Force announced the final chapter of

the controversial Phase II procurement, the contract amounting to \$60 million, as opposed to the original \$114 million awarded to IBM.

The results of this re-examination have gone a long way toward improving the technology of federal systems. Most of the systems called for in the contract (115 B3500 systems) have already been installed. The remainder will be installed by July 1, 1970.

The next major move by the General Services Administration announced that, for the new "offer to bid," there would be a requirement that manufacturers live up to every claim in their sales literature, brochures, and data sheets. This gave the government in conjunction with procurements. Clauses were provided to charge the original manufacturer with the costs of changing manufacturers should equipment prove unsatisfactory.

In addition, peripheral manufacturers who made "plug-in" compatible equipment were to be given preference on the procurement schedule. This made it more difficult for IBM, whose tape drives, disk, and other such devices, where compatibility could be proven, would have priority over the computer manufacturer in supplying peripherals.

One, One, Win One

The price reductions which the government requested were not agreed to by the manufacturers, but the new responsibility clauses were accepted.

The third act opened with L. Richard Caveney of Bryant Computer Products concluding that independent peripheral manufacturers were not re-

(Continued on Page 8)

GSA Stiffens Warranty Requirements

(Continued from Page 6)

civing proper treatment from the Government Accounting Office. He contends that it was economically impractical and generally very difficult for independent peripheral manufacturers to bid on sections of a computer system under current practices.

The cost of bidding was said to be prohibitive and the attitude of the GSA unfavorable. Caveney's protest was denied by the GAO.

Some Make the List

The director of the GSA, H.A. Aberfeldy, then invited some 50 independent manufacturers to apply for a position on the procurement schedule. Several firms applied. One will later announce that the GSA has entered into contracts with two.

The next step came when the GSA announced that the manufacturers were going to be required to supply core breakdowns on their equipment next year. A requirement similar to one which was being phased out of other industries.

The entire procurement situation is "under study," a GSA spokesman told a CW staff writer recently. The GSA has not been satisfactorily dealt with the problems, nor has it proposed comprehensive guidelines to give adequate protection to

nolds, first assistant commissioner of the Patent Office.

One of the basic issues involved in the PL/I debate is whether it was actually patented or if the "technique" was patented. To be patentable, an item must be an art, a machine, a manufacture, or a composition of matter.

It is possible that a program could be considered as a machine, since each time it is loaded, it creates a unique special purpose machine.

The other category possible is that of an "art." The U.S. Patent Office has defined an "art" as, "a mode of treatment of certain materials to produce a given result."

The Patent Office then published a guide, indicating that software was not an "art" and therefore did not deserve a patent.

They contend that any "process" which could be performed solely as a mental process was inherently unpatentable. At that time the Patent Office undertook a broad study of the entire patent problem.

Landmark Case?

The most recent act in this area was the decision by the U.S. Patent Office in April that any process which could be performed without human intervention, whether or not it could also be performed as a mental



This is how the San Francisco Chronicle viewed the finding of large blocks of unquoted software permission.

development under the direction of Cmdr. Grace Hopper, enabled a user to determine the degree to which a compiler meets language standards.

Then last month a software "bug" broke out over what "standard" software should include. Herbert Gross of the National Bureau of Standards favors a "floor to ceiling" concept; i.e., each level should contain no more less than the standard calls for.

Software manufacturers disagreed. They felt that a floor was enough for now and that pre-compilers would provide enough protection for users. In this they had the support of Cmdr. Hopper, who felt the standards must not be too strict, and that it is better to define where a ceiling should be placed.

They have long believed that pre-compilers (programs which analyze the source coding to determine whether it fits the standard and what facilities are needed) will provide adequate protection for users.

5) The Ruby Report

Early in the fall, the Air Force released a 283 page report of the initial evaluation of PL/I. A comparative Evaluation of PL/I was conducted by PL/I with Fortran, Cobol, and Jovial had been conducted by a team headed by Raymond J. Ruby of Logicon, Inc.

The study was a landmark in the field of comparisons. But CW disagreed with the conclusions and made a detailed study of the report (CW, Nov. 6, 13, and 20) and concluded that the way in which the study was conducted and the way in which the results were analyzed had biased the findings in favor of PL/I.

CW's conclusions, based on the data in the report, was that PL/I is difficult to learn, error prone, and more suitable for professional programmers than for the average commercial programmer.

Standardization

Meanwhile, attempts were being made, under USASI, to develop a standard for PL/I. One faction felt that PL/I was in need of immediate standardization, another felt that, due to the lack of readily available information, PL/I was not ready for standardization.

Testing the Compilers

In the meantime, the Navy announced that the first of its programs for testing Cobol compilers was available. These tests,

the first revised set of tariffs filed by the telephone companies brought such a cry of anguish from users and the Justice Department that the telephone companies quickly filed a second, more liberal, revision. More negotiations were held and, although some including the Justice Department urged letting the tariffs go into effect and revising them later, it appeared their implementation might again be delayed.

In addition to old tariffs, with the exception of the rules relating to Carterfone, type equipment, remain in effect.

AT&T vs. The Users

American Telephone & Telegraph Co. spokesman for the telephone companies, is trying to hold onto as much control over equipment as it can, contending such control is necessary to maintain its virtual monopoly. The users, while agreeing that user-owned equipment must meet reasonable standards, contend that AT&T is simply trying to maintain its virtual monopoly in supplying equipment.

7) AT&T Errors

The biggest losers in the 1968 presidential election were computers. While the many failures in the campaign, including technical snafus eventually were traced to software and human errors (one brave election official said, "Maybe our people aren't ready for data processing yet"), the public only knew what it saw on TV and read in the papers.

In San Francisco, where 13,000 votes went uncounted for two weeks, the San Francisco Chronicle commented editorially: "Computerization of the results, introduced in June, was bound to be the most computer-plated, modern way to get instant decisions. It has led both to long delays and, as we have seen in the recent election, to ludicrously incomplete counts."

The paper suggested the city return to adding machines and concluded: "Backward to progress!"

To the Defense

Syndicated columnist Don MacLean came to the defense of computers, pointing out that they could reduce corruption by providing quick counts. Any officials who withheld ballots long enough to tamper with

(Continued on Page 8)



Viatron's data processing System 21, one of the newsmakers of 1968.



COMPUTERWORLD

education

Moore School Formally Establishes Graduate Computer Science Group

PHILADELPHIA — The University of Pennsylvania has formally established a graduate group in computer and information science at its Moore School of Engineering and Applied Science.

Although a CIS curriculum has existed since 1959, the need for an integrated curriculum and corresponding research program was clear, said Dr. John G. Brauer, director of the Moore School. There are 235 graduate students this year who have designated CIS their primary interest. Research projects have expanded accordingly, he said.

The group will be chaired by Dr. John W. Carr III, professor of computer science. The faculty will include five full professors and offer some 30 advanced courses in CIS. In addition, more than 40 related courses will be available outside the Moore School.

Cal Poly to Offer a Degree in EDP

SAN LUIS OBISPO, Calif. — A four-year degree major in computer science has been approved for California State Polytechnic College.

It will be a new curriculum in new facilities for new kinds of occupations brought on by the technological revolution. According to Dr. Clyde P. Fisher, dean of Cal Poly's School of Applied Science, Cal Poly will offer the new bachelor of science degree in computer science.

The program is one of the first of its kind established in the 19-campus state college system.

Students enrolling in the computer science major will share Cal Poly's new \$1.6 million computer science building with students studying mathematics and architecture.

College to Use Radio Station Computer

ATLANTA — Georgia State College, in cooperation with the Cox Broadcasting Corp., will offer a new programming course this month. In addition to formal classroom at the college, the course will consist of hands-on training at CBC's Data Processing Department.

The evening course, offered through Georgia State's School of Special Studies, will be limited to 60 students (20 in each of three classes). Computer training will be held on Saturdays at CBC.

calendar

Jan. 10-11, Washington, D.C. — "New Computer Assisted Concepts in Electro and Vector Cardiography." Contact: American College of Cardiology, 9650 Rockville Pike, Bethesda, Md. 20014.

Jan. 13-15, Washington, D.C. — Institute on Management and Technology in Printing and Publishing. Contact: The American University, Center for Technology & Administration, 3900 Wisconsin Ave., N.W., Washington, D.C. 20016.

Jan. 28-31, Elkhorn, N.Y. — 1969 International Symposium on Information Theory. Contact: IEEE, 345 E. 47th St., New York, N.Y. 10017.

Feb. 13-14, Las Vegas, Nev. — Adapco Management Conference. Contact: J.L. Dreyer, Adapco, 420 Lexington Ave., New York, N.Y. 10017.

Mar. 24-26, Tallahassee, Fla. — 10th Meeting of VIM (Control Data 6000 Series Users). Contact: Dr. E.P. Miles, Jr., Prof. of Mathematics, Florida State University, Tallahassee.

ACM Calendar

Management Science

Feb. 5-6 Americans Hotel, New York.

Computer Selection and Evaluation

Jan. 30-31 Sheraton Chicago Hotel, Chicago.

Feb. 13-15 Marriott Twin Bridges Motor Hotel, Washington, D.C.

Feb. 17-18 Warwick Hotel, Philadelphia, Pa.

Mar. 13-15 Somerset Hotel, Boston.

Mar. 20-21 Hilton Inn, Tarrytown, N.Y.

21

Enrollment forms and further information are available from ACM Professional Development, 211 E. 43rd St., New York, N.Y. 10017.

EDP Language Program May Stop Dropouts

LOS ANGELES — "Acquiring the technical language of digital computers may significantly reduce high school student dropout rates," theorizes B.J. Hoffman, a behavioral scientist.

"The theory that a knowledge of any second language, in this case computer programming, will increase his self-confidence and motivate him to stay in school will soon be tested under scientifically controlled conditions," said Hoffman, who works for Scientific Data Systems.

SDS, aided by city, county, state, and university educators, will sponsor classes for approximately 100 junior and senior high school students from the Compton School District. The classes will introduce these students to the vocabulary and operation of digital computers and, theoretically, provide the students with an impetus to complete their educations.

Three groups of students are presently being selected for the pilot program," Hoffman said.

"One of the groups will be comprised of students with special aptitudes, a second group will contain students with normal intelligence, and the third group will receive no training but will be studied as part of the overall program."

Based on his experience with the California Museum of Science and Industry, which sponsored SDS with \$25,000 from SDS last summer, Hoffman said, "I am confident that among the students who attend our classes the dropout rate will be reduced by 50% or more."

Moving Finger Writes

In this experimental Sylvanics system, hand printed characters, written with an electronic helipoint pen on an electronic tablet, are read by the computer. The display permits visual verification that the system had interpreted the characters accurately.

Polvino Heads Digitronics Users Association

Surgeon General's Conference

NEW ORLEANS, La. — Charles Polvino of American Cyanamid Co. has been elected president of the Digitronics Users Association.

Other new officers include: M. Jeffrey Burch, vice president; William Noyvitz, treasurer; and Morton Siegelbaum, secretary.

Burch and Siegelbaum were re-elected.

The association also voted to continue allowing nonusers of Digitronics equipment to attend seminars held by the association.

The association is composed of users of Digitronics data acquisition and communications equipment.

Computers Lost Face in the Elections

(Continued from Page 7)
they would be exposed by the delay, he contended.

But Phyllis Higgins, a computer industry consultant, who represents IBM, would like to see write-in votes eliminated because of the problem of tabulating them by computer. This, coupled with a request that key counties be allowed to retain their own election procedures, may be a plus in the public inspector as saying.

B) Industry Ethics
A battle over the ethics of the Association for Computing Machinery broke out last summer when the ACM, during the IFIP conference, was asked to adopt a code of ethics relating to advertising in the ACM's own publications. ACM Executive Director J.D. Madden replied that the ACM was holding in abeyance all questions relating to ethics.

Questions were then raised as to whether the ethical guidelines, adopted for ACM members sometime ago, applied to the ACM and its employees. Next the ACM was asked if it would not arbitrate ethical disputes between its members.

The whole question of ethics may come up at the next ACM Council meeting as a result of

discussions at the council meeting last month.

At present, it is not certain what the ACM has done to promulgate industry ethics. The organization "may be a trade association as well as a professional society. This would restrict it from any action in the area of ethics."

9) Computer Warranties

The degree to which a manufacturer is actually obligated to stand behind its claims was brought into focus last year.

In April, the U.S. District Court found IBM liable for damages for breach of warranty during the settlement of the Food Center Wholesale Grocers, Inc. suit. This was the first such case that IBM had lost.

The central issue in this case was the court decision that the original tabulating equipment contract had actually been altered by later written and verbal discussions between the customer and IBM.

Then, later in the year, as mentioned above, the Defense Department and the GSA informed computer manufacturers that they would be held responsible for any and all statements and claims provided to procurement officials in conjunction with a procurement,

whether or not such information was contained in the purchase order.

The trend toward forcing the manufacturers to live up to statements made by their salesmen and representatives may be the source of future legal actions against the manufacturers, as well as a means of protecting the user from being misled.

10) The Mini-Computer

Last fall the industry was both amused and startled to hear the announcement of the new mini-computer from Viatron. It seems likely that the first emotion to disappear will be the amusement.

The system is for real. It works, if only in prototype. The system is a hard-wired program system, with only one program available at present. The system includes memory, a video display, a printing robot, and a keyboard device for data entry.

The system is almost ridiculously cheap (about \$39 per month for a normal configuration) and could put the man in the office for less than it currently spends on bookkeeping.

The systems still are scheduled for delivery next summer, and Viatron reports it is having no current problems with manufacturing arrangements.

Push Button Lock Simplifies Security

NEW YORK — A new security lock for computer rooms and restricted areas is available.

The T-4002 push button lock, Simplex, combines the features of combination locks with the ease of operation of pushbutton locks. The lock can be installed in doors, files, cabinets, and any other storage device or drawers or doors, according to the manufacturer, Simplex Lock Co.

The lock has been tested by companies across the country and has been approved, accord-



ing to the company, for use in Department of Defense closed or restricted areas for plants engaged in classified projects.

Typical of the other cabinets, and other types of storage equipment available with the new lock already installed. The combination can be changed as often as necessary for security, and can be opened very easily if the combination is forgotten.

Combination possibilities include the use of more than one button simultaneously, as well as in sequence. From one to five buttons can be used for the combination. The lock has for \$30. Simplex Lock Co., 150 Broadway, New York, N.Y. 10038.

Power System Monitor

A new power system monitor protects computers and EDP equipment from undetected power line fluctuation. It per-

New Products

ceives deviations from the specified computer requirements and provides audible and visual warn-

plex graphics capability through use of a solid state dot matrix keyboard and visual displays. All elements required to communicate with a computer are housed within the T-4002 console. System components are: display unit, terminal control, character generator, keyboard, and serial output interface. The screen is 6-1/2" by 8-1/4" and will accommodate up to 35 lines of alphanumeric characters with 80 symbols per line. Manual entry of data is through a solid state keyboard with full USASCII capability. Tektronix, Inc., P.O. Box 500, Beaverton, Ore. 97001.

Small Computer

A new digital computer, the

Modem 1000 has 4096 words,

1.0 microsecond memory expandable to 32,724 words. Byte,

ing signals. A clock on the face of the terminal indicates the time of a malfunction and the event is permanently recorded on a four channel strip chart. Four models are available. Airoyal Manufacturing Co., 117 Harrison Ave., Roslindale, N.Y. 07068.

Graphic Terminal

A new self-contained, desk top graphic terminal provides com-

word, and double word processing capability with multiple indirect addressing are included.

Standard tape reader and punch, incremental magnetic tape, IBM compatible magnetic tape system, digital plotter, line printer, and rotating mass storage unit are optional. Price, \$13,900. DataMate Computer Systems, Inc., 1000 N.W. 36th Avenue, Miami, Fla. 33147.

tion written on a 5" storage display tube to composite video or modulated RF for viewing on large screen television monitors

\$1595. This built-in programs for solving, percentages, square roots, and raising to powers, as well as the basic arithmetic functions. Six registers can be used interchangeably and three of the six are independently addressed from the keyboard. The decimal handle decimal from 0 to 15 places. Decimals are entered into the machine as they are read from the problem and answers print to the number of places selected and are rounded off if desired. Olivetti Underwood Corp., 1 Park Ave., New York, N.Y. 10016.

Tape Spooler

A high speed tape spooler for use in data control and data processing applications contains a servo mechanized tape



or receivers. The unit may be operated in a Store or Nonstore mode. Typical applications are communications terminal, data communications terminal, education, and training. Priced at \$2200, the scan converter comes in cabinet or rackmount. Tektronix Inc., P.O. Box 500, Beaverton, Ore. 97005.

Data Set

A new data set, Modem

4400/48AE, automatically equalizes dial-up phone lines for high speed data transmission and automatic line analysis in the transmission line. An indicator

shows when a line is not suitable for data use. International Communications Corp., 7620 N.W. 36th Avenue, Miami, Fla. 33147.

Input/Output System

A new input/output system,

the Univac 1100 IOS, priced

from \$185,000, has a main

memory of 36 bit words and is

designed for use with 1108

systems, servo control pro-

gramming equipment and remote terminals.

Such functions as com-

munications handling, card read-

ing, card punching, and line

printing are transferred to the

IOS. Hardware tabling of com-

mands and data transmission

channels are included. Delivery

will begin in late 1969. Sperry

Rand Corp., Univac Div., P.O.

Box 8100, Philadelphia, Pa.

19101.

Calculator

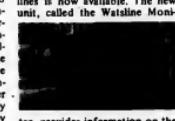
A new electronic printing cal-

culation, the Logos 328 priced at

tension system for trouble free handling of tape. A high speed rewind facility permits tape to be rewound at speeds of up to 180 ips in either direction. The unit is equipped with 8 inch NAB reels. Servo arms can be latched at the outer extremity to facilitate tape loading. Ferranti-Packard Electric Ltd., Electronics Div., Toronto 15, Ontario.

Wats Line Monitor

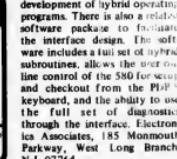
A device for measuring the amount of time used on Wats (Wide Area Telephone Service) lines is now available. The new unit, called the Watsline Mon-



itor, provides information on the number of calls made over each monitored line, and the total number of hours used on the line. The unit can be used to assess the effectiveness of patterned or random installations, as well as a warning device for overtime use. The unit sells for \$495 and carries a one year guarantee. Monitor Business Machines, Inc., Freeport, L.I., N.Y. 11520.

Analog/Hybrid Interface

A standard analog/hybrid interface has been developed to interface Electronic Associates' 580 desktop analog/hybrid computer to Digital Equipment Corp.'s PDP-8. The new interface offers a low cost use of hybrid computation power for training and development of real time operating programs. There is also a related software package to facilitate the interface design. The software includes a full set of hybrid subroutines, allows the user on line control of the 580 for setup and control of the hybrid keyboard, and the ability to use the full set of diagnostics through the interface. Electronic Associates, 185 Monmouth Parkway, West Long Branch, N.J. 07764.



computer time

On the West Coast
Call (213) 937-1760
5525 Wilshire Blvd., L.A. 90036

tbi
TIME BROKERS, INC.

National Brokers of Computer Time
380 Lexington Avenue
N.Y. 10017

AN UNINTERRUPTIBLE POWER SYSTEM FOR YOUR COMPUTER CAN SAVE YOU FROM:

PROCESSING ERRORS — caused by millisecond power line disturbances. Experience shows that anywhere from 25 to several hundred power line interruptions lasting up to 20 cycles may be expected annually.

DOWNTIME — caused by total power failure. Experience indicates that 2 or 3 total power line failures may be expected annually.

OUR SERIES 700C UNINTERRUPTIBLE COMPUTER POWER SYSTEM IS DESIGNED SPECIFICALLY TO DELIVER "CLEAN" AND "CONSTANT" POWER TO YOUR CRITICAL COMPUTING EQUIPMENT.

* Battery stored power for safe shut-down or extended operation.

* Voltage is regulated to 2%.

* Frequency is regulated to 1%.

POWER SYSTEMS & CONTROLS, INC.
P.O. BOX 1838
1733 ARLINGTON ROAD
RICHMOND, VIRGINIA 23213

New York — Frank A. Wood, Jr.
Richmond — Ralph A. Amos
Richmond — William R. Graff

(212) 475-3892
(703) 355-4514
(703) 355-4514

A \$1 Billion 'Gift' Goes Begging

By L. Richard Caveney
Director, Government Marketing
GTE Government Systems

I have \$1 billion dollars, which the federal government refuses to accept. We now have a 10% surtax on individual income and Congress required a \$6 billion cut from federal programs as part of the surcharge act.

The present cutting approach applies restrictions and cuts the board without regard for efficiency and waste. It is these latter problems which require an urgent call for understanding by the public.

The greatest "economy" is to be effected from this country's research and development activities which account for about half the controllable part of the budget. R&D was reduced \$56.3 million in the President's 1969 budget—a whopping 35%. The cuts came not only from space and research facilities but from medical research, a shrinking program for a critical shortage of physicians. How can this type of retrenchment be called "economical"? Present cuts also will diminish the ranks of future scientists and engineers.

What has a conservative businessman to worry about? When basic research dries up, so does the source of new applied technology.

The cuts should be accompanied by the efficient management of existing men, money, and materials coupled with the rapid implementation of new ideas from within and without the federal establishment. The cuts also should be accom-



R. Caveney

panied by a sharp reappraisal of procurement procedures.

Procurement realities, which include profit oriented organizations, have little force within the federal establishment. "Cost-effectiveness" is a dirty word, not a rigorous, penetrating method for effectively allocating resources. The problems in technical procurement are well known. In the day when an engineering education's primary thrust to burgeoning technology means far less than a decade ago, we have many government "managers" making decisions on major equipment procurements whose latest knowledge, and in some cases, past experience, is World War II. The most accelerated technology of today, the instrumentation of 20 years ago is up-to-date: computers have only come into currency within the last 15 years; lasers, solid state physics, communications satellites, and instantaneous TV replays are examples of the changes that have occurred in the last 15 years. Can they be easily understanding differences, or the complex inter-relationships that exist between existing equipment and the proposed purchases? Or do they simply say,

"I'll take that one," because they recognize a familiar manufacturer's name?

Congress the Watchdog

This problem is compounded by the fact that although Congress will not appropriate funds without providing for supervision of their disbursement, the individual member of Congress has come to feel interested in his own technical knowledge and hesitates to "take on" a lineup of agency "experts," particularly in public session. Congressional committee staffers, in general, are not technically trained, either in the sciences, about the conflicting "art" advised they require frequently.

The result is purchasing anxiety, sometimes referred to as the right of "free choice." The agencies have, for all practical purposes, complete, unsupervised control of any purchases for any program, no matter how technical.

Establishment's Position

As modern science produces a revolutionary environment, which is part and parcel of the human condition, the best and most peaceful way for the nation, the conservative position remains: there must be no outside review or control over the procurement practices of the federal government, and there must be no "third-party intervention" by any board, panel or expert on management of federal policy. The cost of having many bids and purchases of any sort are involved and wasted. In short, all effective power must be reserved to "Big Brother," the federal establishment.

The starkly etched needs of our domestic society and the need to be in the environment of the upper echelons of government managers to be comfortable, because, as a presidential spokesman has written, to change "would require complete revision of our present concepts of . . . procurement."

Suggestion System

In an era of instant change, some federal employees hope to modify or alter the winds of federal procedure through the Federal Employee Suggestion Program.

But there is no room for a suggestion if rejected. Levels of discrimination in my suggestion show a complete disregard for submitted facts and in general are nonresponsive to the suggestion's specifics.

For example, one of the Air Force's largest computer users turned down my extensive and detailed and documented million dollar suggestion regarding a newly marketed computer tape drive with the comment, "We had already witnessed a demonstration of the tape unit of which you informed us. . ." There was no refutation of the cost figure, which was \$15,000,000, and no offer to negotiate with a decrease of 29.7% in cost; in fact, no reference was made to any of the cost-effective specifics.

The Congress has an interest in the maximum utilization of appropriate funds. A staff of the House Committee on Post Office and Civil Service said they "frequently" had government employees call regarding rejected suggestions, but they could do very little as they had no personnel or funds for the purpose of evaluating rejected suggestions. He forwarded a copy of their May 16, 1967, report to cover "examples of improved management reported by the 26 largest departments and agencies in the federal government."

Cost Cutting Tip*

One of the cost cutting tips, made by the General Services Administration, was as follows: "Save on use of the character 'O' on typewriters. In many instances this character is now imposed by typing the letter 'O', backspacing and then adding the diagonal slash '/'". These three

But Caveney Sees Progress

As 1968 closed, L. Richard Caveney, one of the loudest critics of Federal procurement practices, said he believed the fight for change finally is making progress.

"Since I testified before Congress in 1967, I have noticed an increased understanding of the peripheral manufacturer's problem," he said.

The Air Force's "free demonstration" requirement for nonstandard computer systems has been put in a more realistic time frame, he said, and the complete elimination of the procurement committee has been proposed by the Executive Branch, the Fall Joint Computer Conference last month, which held a pre-organization in 1968. This, he said, will give more than 80 manufacturers a unified voice which will have more impact on legislation and on the Executive Branch.

And, he said, the new Republican administration hopefully will have a much more friendly attitude toward business problems and be more opposed to waste,

steps are time consuming in instances where usage of the character is very frequent. The GSA has arranged that any standard typewriter can be ordered to include the character at a \$3 increase in cost.

With savings of this value were filtering about the GSA, through congressional committee to publication and distribution, several valid suggestions on ADP (valued by outside experts as bordering on a one billion dollar a year saving) are either turned down due to inaccuracy or are not responded to at all. Manufacturers of computer peripheral equipment, such as magnetic tape transports, are attempting to get on GSA schedules (license to sell to the U.S. Government) and thus create price competition. To state it another way, GSA is attempting to standardize the market in the procurement cycle. And yet the federal government loses the ability to reappportion its resources toward its domestic tasks.

Air Force Savings

On page 6 of the publication the Air Force proudly proclaims its "standardization of Air Force base level automation" with projected six year "savings" of \$17,550,000 beginning in 1968. The Air Force has accomplished this with a standard electronic data processing equipment (EDPE) configuration. It does not mention that the Phase II contract initially let by the Air Force to IBM had to be renegotiated after the upsurge by major computer corporations and other groups, resulting in a cost increase to the government of approximately \$50 million. The renegotiated winner will supply a minimum of about 130 computer systems, with each computer system having two or three \$200,000 large capacity memory storage units.

The report also does not mention that testimony given to the Congress in November, 1967, proved that for one typical \$900,000 government owned computer configuration, the use of independent manufacturers' peripheral devices would result in a cost reduction of about \$400,000. This is a 44% cost avoidance at the outset which, extended over the Air Force's 130 EDPE minimal basic configurations, could total at least another \$40 million in savings. Additional savings in floor space, spare parts, and maintenance and support would also have added substantially to these savings. Such savings would buy a tremendous amount of "system responsibility."

Since that testimony was published, no changes have been made in that procurement nor has any GSA procurement been let in which a fair amount of independent manufacturers' products are bid as individual units.

On April 25, 1968 Bureau of the Budget letter explains: "To provide for direct bidding of magnetic tape units, or other computer system components, as separate pieces of equipment in all procurements which require complete revision of our

present concept of EDP systems and procurement."

The Facts Be Damned

In other words, although expert written testimony has been given to a congressional committee, the problem is just too big to contemplate, and please, gentle men enough not to bring it up again because we in the Budget Bureau are too busy trying to cut \$6 billion from needed programs to think of modifying our procedures to effect savings by cost avoidance.

Nor does the Air Force mention the fact that the Phase II contract may put a second computer at most Air Force bases. My understanding is that the Air Force is using the 100% funding supplemental phase which will not be compatible with the Burroughs computers being acquired and so cannot act as backup units. Nor can they share the Phase II personnel and financial activities. In the ground being laid for the integration of Phase I and II somewhere in the Pentagon at this moment?

According to the GSA, the Pentagon lost \$160 million dollars by acquiring new computer equipment even as computers it already owned or leased stood unused. This idle computer equipment amounted to an estimated \$250 million dollars. Not a bad loss, only \$40 million. If government were rated by how much it wasted in tax dollars it would be the most efficient government in the world.

President Harry S. Truman stated when he signed into law H.R. 1366, which granted unprecedented power to the Defense Department from specific procurement restrictions during peacetime, that this bill had a hidden danger and that responsibility upon the Executive Branch, which includes the Defense Establishment, had been increased. The danger, he said, is that the natural inclination of the Defense and in peacetime will lead to the piecemeal placement of contracts by negotiation and undue reliance upon large concerns. This, he said, must not occur. It has, in a sense, this gives government a license to practice collusion and, if not collusion, stupidity at the taxpayer's expense.

Did President Truman have the foresight to put forth the first warning concerning the huge military-industrial complex which has been forged and nurtured by the misused procurement law, H.R. 1366? About 1960, former President Dwight D. Eisenhower also told the American people of the need for merger. All the technological procurement of the taxpayer's dollar and the lack of efficient management in government seems to support the fact that both former presidents were right. Congress should act expeditiously to insure the proper continuation of the Executive Branch in order to provide for the proper funding for all programs and decrease the possibility of any such future legal crisis.

(Continued on Page 11)

COMPUTERWORLD

SPECIAL SECTION

Section 2

January 1-8, 1969

Page 1A

CDC-IBM Suit Involves Many Issues

Share, PL/I, Maintenance, IBM Salesman,
Customer Employees Are All Mentioned

The Control Data complaint against IBM may well involve millions, perhaps even a billion dollars. However, this contest between the giants has many-sided issues which directly concern parts of the computer community. There are references to the IBM quota system, to customer employees, to computer languages, etc. These are brought out, together with some background, in the stories on the next two pages. In the pages following we are reprinting the original complaint as well as IBM's reply. In the individual stories, references to particular sections of the complaint are keyed in accordingly.

PL/I Development Discriminatory?

Joint Ventures by IBM And Customers Cited

In the complaint, Control Data claims that IBM has formed joint ventures with its customers and customer groups on discriminatory basis. In its defense, IBM's position is that it has participated in such a way as to deny Control Data participation in these computer language developments, or even access to their achievements.

The entry, in paragraph 23 of the complaint, subsection M, page 8, appears to be a direct reference to the formation of PL/I. PL/I started off as a committee set up by one of the IBM user groups, Share, which was interested in finding a successor to Fortran. Originally the name of the language being developed at the time was, indeed, Fortran VI.

After the first meeting of the System 360, which included a mysterious reference to "PL/I," the committee was expanded and at one time included members from non-IBM computer firms. These were later dropped and the effort became merely one made up of IBM, Share, and a couple of others.

Since then, although there were manuals printed about the language, the specification changed constantly and this caused problems, even within IBM. The DOS PL/I, for instance, was built around the third edition of the PL/I specification manual. This was the case, for many years until the fifth edition had been published. Later, restrictions were placed on the language specification manuals by IBM.

Recently some members of Share came to the opinion that IBM did have what they considered to be undue influence in the PL/I committee. In a study report on the alternatives to the Share/Guide merger, recommended a number of ways to modify this influence. In general, they suggested a reduction in the size of the organization to a more manageable structure rather than to increase the size as was being proposed by the executive committee, which favored the Share/Guide merger.

Another point in the complaint is that joint ventures have been formed with customers as well as with customer groups. Although there is no allegation of conspiracy, this could cause ramifications if cause many IBM customers are large

enough to invite problems of antitrust or their own organizations.

Original members of firms, such as General Electric, which were both computer manufacturers and users of IBM equipment, were very specific about the openness of the Share activities. However, recently Share has moved to restrict the distribution of much of its material through the use of "paper walls" and through restricting the distribution of copies of their meeting proceedings.

Master Contracts And Their Effects

On page 10 of the complaint (22cc), there is reference to the use of master contracts for many customers. The complaint alleges that the use of such contracts lacks written particulars concerning the terms specifically defining the power and obligations made by the defendant, IBM, for a customer's subsequent computer procurements.

One illustration of these contracts was disclosed earlier this year in an action between Food Center Wholesale Grocers, Inc., (the plaintiff) and IBM. The food center had ordered a RAMAC system in 1962, and IBM had agreed to furnish the operation of the 305 RAMAC and the question of what constituted the contract between the two parties was argued in court.

The food center claimed that the contract, or agreement, between the parties was not embodied in any one document, conversation, or action, but was created as a result of many meetings and conversations. It said the actions of the parties were to be used to define the contract rather than scanty and incomplete documentation.

The plaintiff said that the terms of the contract included an agreement on the part of the food center to lease a RAMAC from IBM for use in the food center's operation of a wholesale grocery warehouse. RAMAC "was to perform certain accounting, administrative

and record keeping functions electronically."

In its answer, IBM denied generally those allegations. In particular that defendant covered the allegations that the agreement if any between the parties was entered into on or about September 26, 1962. The defendant's position was that the primary contract between the parties was entered into September 26, 1954, in writing, a copy of which is attached hereto as Exhibit "A". One of the terms of that 1954 contract states as follows: "machines and devices, in addition to the above, to replace any you may now have or use, will be furnished to you under this agreement at the schedule of charges in effect on the date such machines or devices are installed ready and for use."

IBM's answer to the 1954 agreement, IBM received on or about May 28, 1962, a purchase order from Food Center in which Food Center ordered from the defendant a 305 RAMAC. The order was accepted sometime during the summer. Subsequently, IBM tried to meet and eventually did meet the date requested by Food Center for presentation of the RAMAC. Pursuant to the terms of the general 1954 contract, "IBM agreed to furnish 'its electric accounting machine service comprising the use of its machines and devices in the operation of machines, and machine maintenance service,' (emphasis added) upon the terms and conditions set forth in the remainder of the contract."

ARGUMENT

It is the defendant's contention that the contractual relationships between the parties are governed by the 1954 contract pursuant to which various machines were ordered by the plaintiff over a period of years. The machine in question was ordered by the plaintiff on or about May 28, 1962. By the terms of the 1954 agreement, plaintiff had a right to supplement or replace its existing use of machines with the machines listed in the 1954 contract. The basic obligation of IBM, however, did not change, namely "to furnish its electronic accounting machine service comprising the use of its machines and devices listed below, instruction in the operation of machines, and machine maintenance service." The obligation to furnish the machines in the 1954 contract was fixed by the 1954 contract. IBM's obligations were defined and stated by the 1954 contract and consisted of an undertaking to furnish the machines to the customer to maintain them and to instruct the customer in their operation and use. It is IBM's contention that it was never part of its contractual obligation to provide the RAMAC for the use of the plaintiff.

The contract does include a phrase which indicates that the machine supplied should be in accordance with IBM's published specifications. However, it is not clear what this actually contains.

In this connection can the jury give a decision of breach of warranty and negligence by IBM, in favor of Food Center — but dismissed Food Center's claim for breach of contract.



The console of the CDC 6600. Control Data contends that IBM actions damaged the market for this machine when it was first introduced by announcing the IBM 360/85.

Software Lock-In Cited as Hindrance

On page 8, under K2, a lock-in involved in the use of single prices for hardware and software is claimed to have hindered the development of independent software companies. Software has become so important that a machine can really be said to be unusable unless the software is available. There have been individual

statements by IBMers that the cost of software to a customer could be calculated to be only a small part of the cost of the computer itself if it was providing it to the customer.

The actual cost of software development is not really known. Two years ago, in talking to a Share meeting, Thomas J.

Watson, Jr., chairman of IBM, revealed that IBM had badly underestimated the cost of developing the 360 software and commented that he had asked two IBM executives just what it had been. The first said \$40 million, and the second said \$50 million.

The Association of Independent Software Companies, in a position paper dated Nov. 22, gave its definition of the problem which is like this:

Let's take a hypothetical example:

Software Manufacturer "A" decides he can build a Cobol compiler for the 360 that will be 25% more efficient. "A" decides to market this product which employs some innovative concepts and expends one million dollars. The product performs as originally estimated. "A" advertises in the trade publications and in the trade publications which is 25% more efficient than IBM's for only \$5000. "A" distributes literature and user manuals to prospective clients and runs demonstrations. He even installs a few systems. However, as word gets out

about this new system, the users put pressure on IBM to produce an improved system. IBM "reluctantly" agrees to do this. In business, new products are often introduced to compete with products which were developed in the promotion of "A's" product. Since patent protection was not available to "A", he is forced to pay a price which is based on the innovative concepts that he developed. "A" lost a lot of money.

You may say that can't happen but a very close approximation of the situation described above happened with Digitak and a Fortune Compiler. It happened to ADR with a system called ESI. It will happen again. It will happen if the economy of the software or the customer pressure require it. Software companies cannot base the existence of their business on the philanthropy of the computer manufacturers.

It is interesting to note that the software companies felt that separate pricing of hardware and software did not solve the problem.

Sales Quotas Are Called Too Restrictive by CDC

The size of salesmen's quotas is generally an internal matter in a company, but in its complaint Control Data has also featured IBM's sales quotas.

The IBM quota system is described as so restrictive as to coerce its employees (see page 9 of the complaint). The quota system appears to be 100% sales, an unusual quota system. This is like most systems, based on points, credits, and debits. However, unlike many sales compensation plans where a salesman is debited quota points only if a customer fails to take ordered equipment, or if the use of the equipment is delayed, IBM quota systems are based on 100% debit on the value of any equipment discontinued, even if new equipment replaces it.

The quota arrangements cover three pages of IBM's data processing sales compensation plan. These quota arrangements, as some IBMers term them, keep one person as an in-house "adviser" on the best time to place orders so as to obtain the maximum commission. Essentially, however, the result of the quota arrangements is that a sales representative's

commission can be hurt very substantially if any of the accounts in his area discontinues use of IBM equipment without purchasing or renting more expensive equipment from IBM. This is true no matter how long the equipment being replaced has been in use.

In its report to Control Data, IBM claims that the largest contribution in the cost of processing, which, it says, has decreased to 1/40 of what it was a few years ago. However, there are normally no arrangements made to reflect this fact in working out quota debits on older equipment that is being replaced.

There are a number of ways in which a branch manager can effectively eliminate some of the worst effects of quota systems. By designating particular representatives to account where quota sales performance is not part of the salary structure, it is often possible to clear out a number of installations (which would otherwise provide problems) without impacting the representative concerned.

Breach of Consent Decree Seen In IBM Time Sharing Service

In 1952 the United States filed a civil action claiming that IBM, which then owned approximately 90% of all tabulating systems in the United States, had violated the Sherman Act by monopolizing and attempting to monopolize interstate and foreign trade. After four years of litigation culminated, in 1956, in a consent decree through which IBM agreed to effect not to engage in the service business except as a separate corporation.

In the Control Data complaint, page 10, reference is made to this decree and it is claimed that the recent entry of IBM into the time sharing business was in breach of this decree. IBM originally started a time sharing operation (Card 600 Basic, etc.) in 1956. In 1958, but only two months ago moved them to the Service Bureau Corp. It was believed at that time that this move had occurred because of the pressure put upon the corporation by people like Joan Van Horn of VIP Systems.

The key portion of the 1956 decree appears to be the definition of a service bureau business. This is defined in the decree as being "the preparation with tabulating and/or electronic data processing machines of account, statistical and other commercial information and reports and others on a fee basis." IBM argues that the provision of a time sharing facility allows a user to prepare his own reports without the intervention of any service bureau personnel and so is, in fact, a service bureau operation.

Now Over?

In this area the Control Data complaint makes no reference to CDC's feelings on a breach of the decree or whether the behavior complained of has now actually ceased.

One point has been brought out which

may affect this (also on page 10) where the complainant refers to the alleged joint marketing efforts between IBM and the Service Bureau Corp. which, the complaint says, has been used as a vehicle to lock customers in and to grant discriminatory price concessions. No direct joining of these two operations is mentioned in the complaint.

How the Sherman Act Describes Antitrust Violations

Section 2 of the Sherman Antitrust Act provides:

"Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person, or persons, to restrain trade or to discriminate in the price of commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding fifty thousand dollars, or by imprisonment not exceeding one year, or by both such punishment, as the discretion of the court."

This is the section most relied on in the Control Data complaint. The act does not say that a monopoly is prohibited, but says that "to monopolize" is to transgress the law. The word "monopolize" is broad and not defined in the act. The problem before the court will be one of statutory law. Any economic, social, and political philosophies will be only marginally relevant.

There are three potential offenses in Section 2 – to monopolize; to attempt to monopolize; and to combine or conspire with others to restrain trade.

While it is quite somewhat difficult to define what is needed to have a monopoly, the phrase "to attempt to monopolize" is much harder to define.

The basis comes from common law, which existed before the Sherman Antitrust Act. It relates to any attempt to restrain trade, an action considered to be both unwise and also an inevitable result of a monopolization.

Different Companies, Different Rates

As a result, many actions which a company can perform quite legally cannot be taken by a firm capable through these acts of effectively forming a monopoly. A businessman, reading through some of the complaints, might well wonder if some of the conduct complained of is not a good business practice. For instance, fighting for an order, even when he has heard that the order has gone to a competitor; obtaining patents and patent rights; using "letters of intent" to bind a customer to place a firm order later. This is opposed to, and often seen as, ordinary business practices. He is quite correct – but this may be irrelevant.

Under the law, it is possible that these same actions, when taken by giant companies, may be found to be a serious "attempt to monopolize," and therefore be forbidden under the act.

Foreign Commerce

One point of the law is that it applies to interstate commerce as well as foreign

commerce. The federal government has the power to regulate trade with other countries and on occasion has done so. The aim of this regulation is to provide other American companies with access to foreign markets rather than to spread the protection of the Sherman Act to foreign countries. So much is this so that if the foreign competition falls into a cartel type operation, specific exemptions have been granted for American firms to do likewise, despite the Sherman Act.

The Control Data systems were sold fairly well around the world. Even so, there are many areas where IBM through its world trade organization has almost complete control. The Near East oil refineries probably constitute one such area.

The effects of any change ordered in the policy of IBM in foreign trade presumably would be felt in the first place at securing larger shares for such companies as General Electric in France, Honeywell in Scotland, etc. However, it is possible that the foreign government would insist in equivalent protection given their own companies. The effects of this case might then well be to extend some protection to non-American manufacturers, even though the Sherman Antitrust Act is simply designed to protect American companies.



Control Data's new 7600, the largest, fastest computer in the world, is CDC's latest bid to capture more of the large scale computer market.

Complaint Practices

33

than 1 per cent of the total.

(b) A substantial number of information experts, including computer experts and subversives, that is potential, requires regular negative review of acquisitions of capital for research and development, to fund computer leases, and to provide accredited software and computer services.

(c) The vast quantity of computers which defendant IBM has installed, as well as the extreme complexity of computers, gives defendant IBM an absolute advantage over computers of other manufacturers in the area of control of computers.

(d) The number and variety of personnel available for use on any manufacturer's computer, as well as personnel trained to write programs, for, operate and maintain computers in substantial proportions, the number of computers which that manufacturer has installed.

(e) A substantial number of defendant personnel engaged in use or procurement of computers were trained on defendant's computers or with defendant's computers, and with an understanding that they would be employed toward defendant IBM's computers. However, due to the complex nature of computers and in many cases the lack of knowledge of defendant's computers, defendant's personnel are compelled to rely upon a computer manufacturer's representations or representations of other computer manufacturers.

(iii) There is considerable customer resistance to change computer manufacturers. In addition to the cost of hardware, a customer spends substantial time in training personnel to use the computer, in programming, and in preparing his data and his programs for the computer; a large portion of which expenditures may have to be duplicated if the customer replaces that computer with another manufacturer's computer.

Rural and Residential Areas

(k) A number of computer manufacturers have been forced to abandon the computer markets and submarkets due to inability to realize profits. Indeed, most companies which remain in the computer submarkets have been forced into the market on the other hand, have successfully employed substantial profits and a wide choice of profitable alternatives in the manufacture and marketing of its computers.

TECHNICAL PRACTICES

23. Defendant IBM, directly and through its subsidiaries, has wilfully acquired and maintained monopoly power in the computer markets and submarkets, or has had the specific intent to obtain such power, in that it has consciously, deliberately, or intentionally engaged in the following acts, behavior, conduct and practices, among others:

Get the word out about your system by prominently announcing the 200/21

Development, Delivery, and Performance of Hardware and Software - "Paper Machines and

Page 7

(d) It has repeatedly entered into contracts, commitments, and letters of intent in which it has agreed to supply to its customers and others and, having received its competitors' offers, has then failed to fulfill the obligations contained in such contracts, commitments, and letters of intent;

(e) It has continually issued contracts and accepted the acceptance of a contract with its customers, and in the commercial sense of needing money data, training personnel, preparing a site for the computer, and preparing for the use of the computer, has failed to fulfill its obligations to its customers, and has delayed giving the customer to its computer irrespective of actual delivery or performance of the contract, and has thereby caused said customers from acquiring computers from Plaintiff and other manufacturers;

is particularly true when the representations are allegedly meeting all needs of customers and comp-

(E) It has directly and indirectly offered discriminatory prices and discriminatory services and technical assistance to some customers not given to other customers, including, among others, outright discounts from standard published prices, "free" computer units for extra services, and "free" software. The "free" software is not necessarily utilized in the form of substantial "value received" contracts, extended purchase plans, and unusual and substantial "commitments of free" manpower for programming, maintenance and system support. The recipients of such discriminatory practices are typically customers or members of a class of customers where:

- (i) Defendant 100%'s market share or power is least dominant or it is threatened by and encouraging more intense competition;
- (ii) Defendant 100% stands to gain certain economic benefits or precision in furtherance of its proposed conduct in the computer markets and submarkets;
- (g) It has established sales and lease prices for some types or models of computers at levels which would result in a significantly lower percentage of return on gross receipts or revenues than was received from the sale of other models of computers, notwithstanding that it was not in its dominant market position, or with respect to which Plaintiff(s) or other competitors have not threatened its market position, and has been engaged in the practice of encouraging and inducing some of its dealers or competitors to subsidize its activities with respect to the marketing of types or models of computers.

Page 5

(ii) It has sold or leased computers to customers located in some geographical areas at a lower rate of return or investment or value than is realized in other geographical areas;

(iii) It has sold or leased some computers at a loss for the purpose or with the effect of hindering competition;

(iv) It has sold or charged discriminatory prices and other considerations to hold its existing customers and to discourage discovery than from replacing Defendant IBM's computers with computers manufactured by others;

(v) The allowances of substantially reduced rentals on its installed computers to customers who purchase new computers are being replaced, but only if they are being replaced by Defendant IBM's computers; and

(vi) The allowances of a portion of the rentals paid Defendant IBM by some customers to hold their old computers in order to encourage the purchase of that computer, more specifically, toward the purchase of a different model computer, provided it is a computer manufactured by Defendant IBM;

(1) It has sold or leased to persons or entities to persons or entities, such as maintenance services, equipment or products or services, or software to sell or leased to persons or entities, than are reasonably pricized such product or service, for the purpose of, with the effect of, or to encourage, the purchase of Defendant IBM's computers;

Implementation of B2B to Structure the Computer markets and Businesses

Explanation of the 10 Strategic Components of the Company's Competitive Strategy:

- (1) It has adopted a standard system of computer hardware and designed to enter prior to the industry standard, when standards were in part designed to not see the effect of reducing the marketability of the computers of particular companies. The company has adopted a standard system of computer hardware, which it has confirmed to stand standards until customers determined that the standards were not required.
- (2) It has joined joint ventures with its customers and other groups to have a distribution system, which will be more effective and efficient for use in the market. It has also used its production potential in such ventures to have a significant influence on the market and that customers participation therein or the achievements thereof.
- (3) It has created an under financial burden on its competitors and potential competitors, prior to the entry of the company into the market, to have a significant influence on the computer market and, generally, retained control over the majority of customers and prior to leasing and discontinued sale of computers is the following:

ways, among others:

- (i) Trading upon customers' fear of rapid obsolescence of computers or of market share losses due to the introduction of a new computer by a competitor, and often unscrupulously, introducing new models, rapidly changing model numbers and other variations to keep the customer from getting used to any one model.
- (ii) Pricing old computers to make leasing costs, either in fact or in appearance, higher than the price of the computer purchased, particularly as compared with price of its competitor.
- (iii) Increasing maintenance charges as purchased computers without corresponding increases in the quality of service provided.
- (iv) Refusing to sell or lease to customers who do not make a large purchase.
- (v) Making available certain of the prime concessions referred to in subparagraph (b) above to customers leasing its computers but not making comparable concessions to other customers.

4) Establishing low-grade values for used computers which were initially sold by it at deeply discounted resale prices for the used computers available in the market.

COMPUTERWORLD'S
FIRST
INNOVATION
FOR 1969 --

SPECIAL
SUPPLEMENTS

This is the first in a series of Special Supplements which Computerworld will provide for its readers in the future.

Some of these supplements, like this one, will be devoted to the details and ramifications of important news events.

Others, to be provided at regular intervals, will be in-depth presentations on particular areas of data processing. The first, to be published in February, will cover computer environments, including air conditioning, special flooring, backup power supplies, and physical storage facilities.



Start the New Year Off Right

Subscribe to



COMPUTERWORLD

Today

Your weekly copy of COMPUTERWORLD will keep you up to date! Every week you'll find news that is of interest and importance to the computer community — all of it — the people who design computers, the people who analyze how they are to be used, the people who program them, and the people who manage them.

Your weekly copy of COMPUTERWORLD gives you news on key developments in computer application techniques . . . software . . . equipment design . . . industry developments . . . personnel changes . . . job trends . . . new installations . . . and complete financial and stock information.

Join the action people today — sign up for your weekly copy of COMPUTERWORLD.



COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

Yes, please send me COMPUTERWORLD for . . .

<input type="checkbox"/> 1 Year	\$ 9.00	
<input type="checkbox"/> 2 Years	\$16.00	<input type="checkbox"/> Bill Me
<input type="checkbox"/> 3 Years	\$20.00	<input type="checkbox"/> Payment Enclosed

AA

31

Name

49

Your Title

57

79

Co. Name

15

37

Address

38

51

City

2

6

7

8

15

16

CW

17

18

19

20

21

22

23

24

25

26

27

Please Circle 1 Number and 1 Letter:

YOUR TITLE AND/OR FUNCTION?

- A. Operational Management (nonengineering)
- B. Computer Professional Staff
- C. Corporate Officers
- D. Engineering Management
- E. Engineering/Scientific
- F. Production/Maintenance
- G. Sales/Marketing
- H. Other _____

COMPANY BUSINESS:

- 1. Mining or Construction
- 2. Manufacturer/Computer or Data System
- 3. Manufacturer/Other
- 4. Utility
- 5. Wholesale/Retail
- 6. Finance
- 7. Consultants/DP Services
- 8. Business Service (except DP)
- 9. Educational/Medical/Legal
- 10. Government/Military
- 11. Other _____

Return to:
COMPUTERWORLD 60 Austin Street, Newton, Mass. 02160

\$1 Billion 'Gift' Refused By Government: Caveney

(Continued from Page 10)

The solution is to make management, but more efficient management practices. As John Kenneth Galbraith pointed out in the *New Industrial State*, one can favor technological bigness and oppose administrative bigness without inconsistency. In fact, advanced technology tends to streamline activities. It then makes them less subject to bureaucratic whims.

What the federal government needs are **technically oriented managers**. People with an understanding of technology, who are able to understand the technical language of the computer and of the various sciences. Only a properly trained management oriented individual can properly manage technical programs vital to this nation's economic and social well-being. The ability and will to manage is at least as important as the ability to program. These people cannot be like the postmaster quoted when asked how he managed his operation: "I don't manage it, I simply administer it."

Center for Technology

I propose the establishment of a Center for Technology in the Legislative Branch or in the White House. Recently developed evidence on the M-16, F-111, and Air Force II computer contracts suggests that such a center could more easily pay off in the long run by reducing procurement costs of ten of dollars. The center director would report directly to the leaders of the House and Senate or to the President:

This center would have two objectives: (1) to identify and to encourage management employees who have had their technical suggestion turned down by the chain of command within the Executive Branch and (2) to allow suggestions from individual taxpayers and the academic and business communities to be given proper attention.

Such a center would put a brake on present technological purchases, but would provide sophisticated analysis of agency positions and present them to the Congress and the President in layman's terms. It would be expert objective audiovisual unit for Congress and the President that would act as an intermediary to the laboratory of agency witnesses congressmen now see.

Congress would still appropriate funds, but the Executive Branch could not make a contract award for major technological items without all proposals and contract recommendations being first reviewed by the center and published to the appropriate committee of Congress or the President.

We must all demand an affirmative and constructive spirit regarding institutional changes within Government. We must also encourage the development of those committee and subcommittee procedures that will steadily push the frontier of knowledge farther into the area marked unknown while managing in a manner that will evoke the best from those that labor at all levels of Government.

360'S FOR SALE AND WANTED

IPS has for sale the following 360 equipment: 360/40 131K with 3 tapes, 5 231's for April, 1969 delivery; 360/30 65K CPU for March, 1969; a 2621 I control unit for March, 1969; 4 2311's and 2 2841's for March, 1969. We are also interested in 360/40 131K with 3 tapes, 5 231's for a 360/30 65K tape/disk system for summer, 1969; 360/30 32K 2311-disk system, and a 360/30 8K-16K tape system with 1401 emulation. Please note IPS handles only purchased equipment. For prices or additional information, please call or write.

IPS

INFORMATION PROCESSING SYSTEMS, INC.
200 WEST 57TH STREET NEW YORK N.Y. 10019 (212) 246-2267

Control your computer costs!

- Controlling computer costs is the name of the game.
- 293 of Fortune's "500" are playing the game.

They have attacked the 40% of their computer costs that go to hardware by buying used computers. They have bought used components. They have leased used equipment. They have cast out "emulation" on new equipment — put it back on the old! For the game plan, send your requirements to:

SCC

SUMMIT COMPUTER CORP. INC.
785 Springfield Avenue
Summit, New Jersey 07901

CALL 201-273-6900 COLLECT

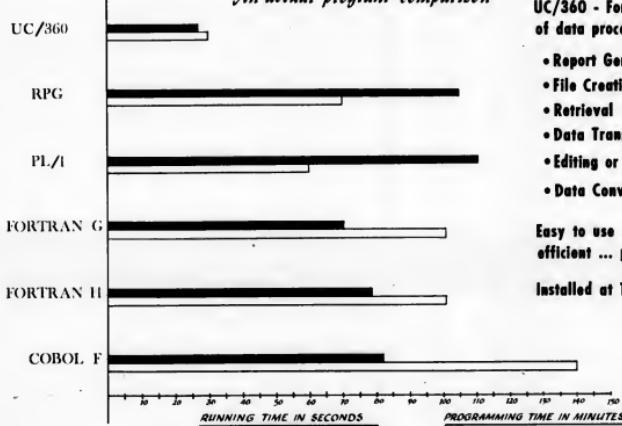
Are you evaluating "TOTAL COSTS" or "PRICE/PERFORMANCE RATIOS" in your COMPUTER DECISIONS?

360 - 7000 - 1400 series available now

UTILITY CODER/360...

THE BEST IN A REAL TEST

An actual program comparison



UC/360 - For a wide range of data processing jobs

- Report Generation
- File Creation and Maintenance
- Retrieval
- Data Transcription
- Editing or Recoding Data
- Data Conversion

**Easy to use ... flexible
efficient ... powerful**

Installed at 15 locations

**AVAILABLE FROM BOSTON COMPUTER SOFTWARE CORP.
15 School St. Boston, Mass. 02108 (617) 227-8635**

DEVELOPED AND MAINTAINED BY CAMBRIDGE ASSOCIATES, CAMBRIDGE, MASS.

'Basic' Adopted for Call/360, But With Several Changes

By Peter L. Briggs

Of the CW Technical Staff

When IBM announced that it had decided to use Basic as the primary language in its new Call/360 time sharing system, it accepted the reality of Basic's popularity and usefulness as a major time sharing language. This is the second time that the first time IBM has adopted for a major service a language in which it had not helped to design or develop.

Language Modifications

In adapting Basic to Call/360, IBM made a number of changes during implementation. The user who is familiar with Basic will no doubt find some unexpected differences.

The differences are in input/output, optional keywords, and the implementation limitations on certain facilities. Arithmetic problems, as usual, crop up now and then. The final, and most important, difference is in the documentation. Basic has always been intended to be easy to learn. This is no longer completely true.

Input/Output

In the I/O area, IBM has introduced a new feature to Basic. This feature, the "PRINT USING n," brings Basic back to the Fortran input conventions and the use of commas necessary in the language. IBM has also neglected to implement the "Mat" instructions. These instructions allow the use to read data from matrices and to and from matrices without looking through the subscripts. This looping requires much more processing time and much more user coding than the Mat instructions. With a limit on the number of statements permitted in a Basic program, this presents problems.

Keywords

IBM has made it optional to use certain keywords. The "Let" keyword in assignment statements is an excellent example. It certainly does reduce coding for the user, but it is not taken too seriously with the naturalness of the language. It does, however, introduce the usual compatibility problems. In a case where a program has been written on the Call/360 system, the user will have to let it run on the Dartmouth system, the absence of the Let keyword will prevent the program from running, due to diagnostics.

Matrix Manipulation

Another problem with the changes in matrix manipulation appears when a matrix is de-



Peter L. Briggs, using an IBM 2741 terminal at Computerworld, inputs a program in Basic to a remote time sharing service.

fined. In this case it appears that IBM has chosen the more natural course, rather than Dartmouth, in which basic statements are started from zero. In other words, if you dimension an array as "DIM (5,6)" under Call/360 the array will contain 30 elements, not 36. Dimensioning it will contain 45 elements. This is a problem of both compatibility and naturalness. For most commercial users, the use of zero as a number is most unlikely; it is much more natural to start counting from one.

Variables

Whenever double precision floating point (real) variables are used, there is always the problem of comparisons. IBM has had several problems with commands for floating point conversion format. The extra bits which are used in double precision are not used in the single precision variables, but they are compared. Results have been unpredictable in the past, and there is no sign that they have solved the problem.

Documentation

The final and probably important, area of difference is in the documentation. The principle purpose of Basic has always been to make it simple for the non-programmer to learn the language while actually using it. This is what became apparent in the first version of the IBM Call/360 Basic Handbook (120-0043-1) is spread over so many pages with so little information content and so much blank space. It is all well and good to have room for expansion, but beyond a certain point it confuses the reader rather than helps him. The information is there in general; it is to learn.

It is very difficult to follow the logic of the language without some sort of formal education. The Basic handbook is not a self-teaching guide, it is a pure reference manual. This problem can be solved by the additional study of Mario Farina's "Programming in Basic," the standard text on Basic. It is necessary to have a good book on the subject, though, because Farina had never heard of Call/360 when he wrote the book.

In general, the command language has a few drawbacks, mostly in the area of conciseness. With a very few exceptions, abbreviations in command names in Call/360 are not permitted. Therefore, the user must do more typing, spend more time connected, and remember more complicated command formats.

Following for the noted drawbacks, IBM has managed to retain the general orientation of Basic and not make it too difficult for the user to access his system.

Basic, the language created at Dartmouth College by Professors John G. Kemeny and Thomas Kurtz, is now a National Science Foundation standard and is becoming the new standard for time sharing system languages. General Electric has made a great deal of use of the language in their various time sharing systems, and Dartmouth College has continued to expand its capabilities. Other manufacturers have adopted Basic into their repertoire, in cases where it has been shown that ease of use is a major factor in popularity. The generic philosophy of Basic has been to keep it flexible, simple, and very easy to learn.

COBOL CROSSREF

Package produces a cross reference of all file, data, and procedure names contained in a COBOL source deck, by line or compiler sequence. Additional features include a special listing of qualified data names and options to resequence and/or list the source deck. Designed for use with DOS 3.2, DOS 2.2, & up. Send for full details and sample output. Price \$120.

Contact: Kenneth G. Taylor
P.O. Box 831
Denville, NJ, 07834

Need Top Quality Software Help?

MATRIX

Professional Services Division

Offers a complete range of professional services from the initial stages of problem definition to final implementation, documentation and training. MATRIX personnel are highly qualified in the following technical areas:

MEDICAL SYSTEMS
REALTIME SYSTEMS
INFORMATION SYSTEMS
COMMUNICATIONS SYSTEMS
DESIGN AUTOMATION SYSTEMS

NUMERICAL CONTROL SYSTEMS
SCIENTIFIC PROGRAMMING
COMMERCIAL DATA PROCESSING
ASSEMBLY LANGUAGES

COBOL, FORTRAN, RPG, & PL/I

Quality performance
is our guarantee.

The Matrix Corporation
530 Fifth Avenue
New York, New York
(212) 697-4331

AUTOFLOW

An automatic flowcharting system that produces 2 dimensional flowcharts directly from Cobol, Fortran, PL-1, and assembly language input.

Autoflow also produces listings of syntax errors, logic errors, data-name cross reference, label (or paragraph or statement number) cross reference index, and alphanumeric label index. Available for IBM 360 systems, H-200 systems, Spectra 70 systems, IBM 1400 and 7090 systems. Write for literature and free demonstration.

PRICE: Upon request

Contact: Applied Data Research
Route 206 Center
Princeton, NJ, 08540

B.M.S. NARROWS

D O S GENERATION GAP

NOW, ONE SERVICE SUPPLIES COMPLETE DOS GENERATION.

- ANY SPECIFICATIONS
- COMPLETE DOCUMENTATION
- FAST TURNAROUND
- FREE MAINTENANCE AFTER GENERATION TILL NEXT RELEASE
- PERSONAL SERVICE
- GUARANTEED ACCURACY

ALL FOR \$100.00

CONTACT:
BILL BRICKING
BURGOYNE MANAGEMENT SERVICES
300 VINE STREET
CINCINNATI, OHIO 45202
(513) 621-8940

SOFTWARE FOR SALE

1"	\$10.00 per week
2"	\$20.00 per week
3"	\$30.00 per week
4"	\$30.00 per week
5"	\$35.00 per week
6"	\$40.00 per week
7"	\$45.00 per week

Minimum 12 weeks
Otherwise \$14.00 per inch

SOFTWARE WANTED
Program to operate on system 360 which will process doctor billing for various types of doctors. Write P.J. Lambek, Box 18, New Windsor, New York 12550.

EARN WITH YOUR SOFTWARE! THE ORIGINATORS OF READYBY3 III

NEED ADDITIONAL EFFICIENT 3RD GENERATION SOFTWARE TO COMPLIMENT EXISTING PROGRAM LIBRARY

STERLING COMPUTER SYSTEMS, INC.

WRITE DEPT. SP-3, 3305 Montrose Boulevard, Houston, Texas 77006

READYSYS III

THE MULTIAPLICATION SYSTEM

Enable 3rd generation facility to operate with optimum efficiency. Others offer pay roll or job cost or billing or inventory facility. The 1200 3rd generation program that makes up READYSYS III allow processing to occur on varied applications within the same software package.

STERLING COMPUTER SYSTEMS, INC.

WRITE DEPT. M-1, 3305 MONTROSE BOULEVARD, HOUSTON, TEXAS 77006

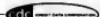
WE ARE NOT

A SERVICE BUREAU

Our costly idle back-up can be your gain.
Configure your own system.

360-50/513K 360-40/356K 2314's
9 & 7 tracks up to 1600 BPI 2311's
1410/7010 compatibility
All shifts available

East & West Coast
N.Y.C. (212) 425-8833 X 18
L.A. (714) 778-8488



360/40 COMPUTER TIME

- 1116, 2 channel
- Four 2311 disks
- Six 2401 dual density tapes
- 360/40 1500 BPI
- Two 1100 LPM Printers
- All Shifts:
- Reprogramming
- Programming
- All available at competitive prices.
- Two 360/30's also
- Application packages

Call: 212/687-2100

L. Krasner

STRATEGIC
DATACENTERS, INC.

25 West 43rd Street - New York, N.Y. 10017
A Subsidiary of STRATEGIC SYSTEMS INC.
Computer Systems Division, 1000 10th Street, Suite 1016
FACILITIES ALSO IN WASHINGTON, D.C.

FOR

SALE

KEY PUNCH

ZUR

11 Spring Street, Waltham,
Mass. Tel.: (617) 809-4651

DETROIT AREA

360/30, 3 Disk, 32K, Time Available Plus Software, Includes Payroll, Inventory Control, Mailing List, and more.

REASONABLE RATES

Call or write: A.P. Path
1400 W. 8 Mile Rd.
River Rouge, Mich. 48218
Area Code 313 949-1200, Ext. 254

PHILADELPHIA

360 - 30, 32K, with Two 2415 Drives, 3 Disk, 2311 Disk Drives and 1400 COS.

Short runs on very short notice, Large blocks of time available.
Ask for Mr. Sonett or Mr. Wood.
215-964-7400

CHICAGO AREA

IBM 360/40, 65K, Five Model 3 Tapes, Two 2311 Disks, 1403, NI 1 Printer, 2640 Rdr./Peh., 2nd Shift/3rd Shift, and Weekends. Call Mr. W. Land at 312-236-4700.

N.Y. AREA

Rockland County
IBM 360/30, 65K, Tape-Disk, Disk/US, 1400 compatibility. Call W. E. Berry (914) 634-8877 Information Science, Inc.

Our distributed system includes FORTRAN, COBOL, ALGOL. Realtime Systems Inc. speaks programming. We have the best support for distributed systems. We offer two ways:

1. Time-shared large scale systems. Text edit input interface from teletype terminals. Text to teletype terminal in your office. Configuration of distributed FORTRAN, COBOL, ALGOL programs, or execute our libraries of distributed programs for programming. Text edit for large programs, text editing, compilations and debugging.
2. Unintended program size

- Text edit
- Unintended data file size

3. Total Service Assistance. Realtime Systems Inc. answers all your questions from consulting, analysis, programming, text editing, conversions in all major languages. We even conduct training sessions to teach computer users.

REALTIME SYSTEMS INC.
a subsidiary of
Lemelson Associates Corp.
863 Three Avenue,
New York, New York 10022
(212) 521-2750

COLUMBUS CIRCLE

AREA
NEW YORK CITY

CDC 915, 4K Page Reader
Can supply large blocks of time including prime shift, Idea situation for persons
communicating or experimenting
with optical character recognition.

AB-DICK Videograph. Produc-
tion 1400 address labels per hour from magnetic tape.
Time available all shifts seven
days a week.

Hourly rates for the above
negotiated according to the
service used. Contact Mr.
Frank Shore by phone 212-265-7300, Ext. 173.

MASSACHUSETTS

NEED TESTING TIME?
Come to
IOC DATA CENTRAL
PRIME TIME
IBM 360/30

- 65K Bytes. • 3 Disks, 5 tapes
- 1401 compatibility • Key-punch • Unit Record Equipment • Chart Readers • Analog and Incremental Programmers • Program Library and Systems Support Available.

Call Mr. Gossard at 944-2224 or write to 269-1/2 Main Street
INFORMATION DYNAMICS
CORPORATION
20 Main Street
Reading, Mass. 01847

HELP

CDC Centers Plan to Make Mac/Ran Package Available

LOS ANGELES — The Mac/Ran package of data analysis programs, developed by Digital Data Corp., will soon be available for all customers of CDC Data Centers.

The package, used for time series analysis and random processes, was originally developed by Measurement Analysis Corp., a Digitek subsidiary. It is currently available for industrial use through a leasing plan, and will continue to be available on an individual basis. The package has obtained a data center right to lease the package for an amount, estimated to be in excess of \$100,000, spread over the next three years.

According to James R. Dunlap, DDC's manager of software development, the first time a major computer company has made a single, advanced software system of applications programs available on such a large scale.

Plans call for a large-scale

outlook for Mac/Ran, which is currently available for different

associated with installment loan management and bookkeeping, according to the company.

The system includes a complete set of management reports. The programs provide information suitable for integration into any general purpose banking information system.

The price includes installation, training, transfers, manuals, and maintenance.

APPLICATION PROGRAMS

Rapidly expanding Data Processing Division of major design and development company has immediate requirement for basic applications programs (P/R, INV, A/P, etc.). Equipment: 360/30, 65K, 5-2311, 4-2415. Will maintain programs on 360/30 by month for West Coast area. Submit application description, output samples and commission proposal.

ELECTROMECH DESIGN AND DEVELOPMENT COMPANY

282 BROOK ROAD, SANTA
CLARA, CALIFORNIA 95050 (408)
244-6460

COBOL USERS SAVE 75%!

New DETOC PROCESSOR utilizes decision tables to drastically cut designing, programming, debugging and maintenance time.

Now bring an EDP program on-line and maintain it in four-months time with the new DETOC (Decision Table to COBOL) Processor generator. COBOL is a standard language, but DETOC's decision tables — which can be run through any standard COBOL compiler — are programming step. Standard procedure statements can be implemented in DETOC and run in the fourth generation computers.

DETOC produces a program as efficient as the best programmed products — in one-fourth the time.

DETOC is extremely fast, since sorting is eliminated.

DETOC is "EASY-TO-USE" which applies when no other rules of the decision table can be run through the system. The four-step process will be available early this year for all 8K PDP machines.

Focal (Formula Calculator) is similar to Joss, and is "one of the most powerful languages developed for the small scale computer," according to its spokesman. The proprietary language was developed by DEC, and is currently available on all PDP machines in a single-user environment.

Installment Loan System
SAN DIEGO, Calif. — A \$2000 installment loan package for banks is available from Focal Consulting, Inc.

The package provides facilities for reminders, delinquency notices, payment cards, notice lists, and all the other functions

DETOC is available now on a limited basis which includes continued maintenance, training and support for the first year the system is developed. There are many practical advantages to its application, including a low cost, fast, reliable and money-saving features. For more data, write or call:

Charles J. V. Fries III

INFORMATION SYSTEMS
LEASING CORP.
222 S. EASTON ROAD
GLENSIDE, PA. 19038
PHONE: 215/885-1400

EDPromotions



OF PROMOTED TO

Evelyn Cowell
Computerworld
Newton, Mass.

Henry Flig
Computerworld
Newton, Mass.

Kate Rachstein
Computerworld
Boston, Mass.

Eugene V. Scott
University Computing Co.
Dallas

Richard L. Robertson
Sperry Rand Corp.

John E. Donelan
Honeywell FDP
Wellesley Hills, Mass.

John D. Shaver
IBM
White Plains, N.Y.

William P. Sharpe
Potter Instrument Co.
New York

Edwin F. Scully
Burroughs Corp.
Poughkeepsie, N.Y.

Charles W. Turner
Control Data Corp.
Minneapolis, Minn.

John W. Pugh
Honeywell Computer Control
Framingham, Mass.

Editor
Special Supplements
Supervisor
Art Services
Supervisor
Typewriter Services
President, Domestic
Computer Utility Network
Manager
User Group Relations
Director
Marketing Education
Vice President
Plans and Controls
Vice President
Marketing
Operations Manager
Education Systems Dept.
Staff General Manager
Planning & Program Review
Manager
Communications Market

WAS

Assistant Editor
Production Director
Assistant Editor
Vice President
Technical Services
Manager
Public Affairs
Manager
Executive Training
Director of Service
General Sales
Manager
Acting Director
Job Corps Programs
Director
Management Analysis
Manager
Computer Subsystems



R.L. Robertson



J. Shaver



W.P. Sharpe

New Literature

Data Processing, Vol. XIII, a 371 page hardbound book, contains management and operational material presented at the DPMA 1968 International Data Processing Conference recently held in Washington, D.C. Subject material is grouped in 11 chapters and fully illustrated. Cost is \$29.95 to DPMA members and \$31.95 to others, plus a \$2.5 handling and postage charge. Data Processing Management Association, 505 Busse Highway, Park Ridge, Ill. 60068.

Potential users of aerospace management methods, private and public, are surveyed in a new publication by NASA. "Applications of Systems Analysis Models" was written under contract for NASA and issued to government agencies and government agencies to benefit from NASA's experience and findings. The publication discusses the adaptation and application of methods to problems that can be solved by the use of modern techniques for solving them. NASA SP-5048, \$5.50, Supt. of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

A brochure describing a new approach to magnetic tape cleaning, "A Systems Approach to Tape Maintenance," includes cleaning with the Mark II tape cleaner, punching master cards with the MP461 and utilizing a Cobol oriented management report generation system. Data Devices Inc., 18666 Topham Ave., Tarzana, Calif.

A new brochure notes seven common sources of computer output congestion and describes the Xerox 2000 CFP printer. Xerox Corp., Xerox 500, Rochester, N.Y. 14603.

A new illustrated brochure describes the CC-30 communications station and its applications. A guide describes the possible configurations, control and function characters of the CC-301 as defined. Computer Communications, Inc., 701 W. Manchester Blvd., Inglewood, Calif. 90301.

An air data communications system is detailed in two new case history brochures. One brochure describes how a modern data communications network of teletypewriter terminals speeds order processing. The second brochure tells how a nationwide communications system enables a company to mail invoices the day after sales are made. Case histories are presented in typical magazine feature article form. Write Dept. SP-90, Teletype Corp., 155 Touhy Ave., Skokie, Ill. 60676.

Included in the quarterly magazine, *Interface 16*, is an article entitled "SDS and the Industry Perspective." Copies may be obtained from the Sales Promotions Department, SDS Systems, 701 S. Aviation Blvd., El Segundo, Calif. 90249.

A 40 page catalog, 700-0125, illustrates and describes 11 calculators, including the new 1600, and contains detailed specifications, prices, and typical configurations. Available from Wang Laboratories, 836 North St., Tewksbury, Mass. 01876.

McCall Information Opens a \$10 Million Data Center

FULLERTON, Calif. — McCall Information Services Inc., an division of McCall's, New York, has opened a commercial computer service facility here equipped with four IBM computers and related equipment valued at \$10 million. The center was originally dedicated by David Mahoney, president of Norton Simon, Inc., of which McCall is a subsidiary.

Mr. Mahoney said that the facilities might be used to form a data bank of information about the editorial resources of the three McCall magazines, university, and research centers.

Max L. Mueller, group vice president, will head the new facility. Other staff members are Phillip A. Cramer, western regional general manager; Thomas



R. Sheehan, assistant manager; Thomas J. Getzinger, controller; and Paul Valeri, marketing manager.

Data & Information
Open Ohio Office

PRINCETON, N.J. — Data & Information Products, Inc., an Applied Data Research, Inc. subsidiary, has opened an office at 21330 Center Ridge Rd., Cleveland, to market proprietary software. Lee Jablonski has been

appointed office manager.

AIM Opens Eastern Office

ENCINO, Calif. — AIM, a software company, has opened an eastern regional office at 17 Sherwood Place, Greenwich, Conn. The new office will be managed by Fred Flannell.

URS Opens Seattle Office
SAN MATEO, Calif. — URS Systems Corp., a computer soft-

ware company, has opened a new office at 2000 Fourth Ave., Seattle, to serve accounts in the Pacific northwest. Heading the new office is Delbert Brown.

FMC Corp. to Construct
60,770 Sq. Ft. Building

SAN JOSE, Calif. — FMC Corp. plans to construct a new building in the Airport Industrial Park, Santa Clara, to house the company's Management Information Systems staff and computer center, as well as the FMC Electronics division's operations. The project is scheduled for completion in seven months.

Robins Forms New Division

FLUSHING, N.Y. — Robins Computer Corp. has set up a new division to handle its electronic, audio, and data processing products. The new division will be headed by Jack Friedland, a vice president of the company.

Compuicket Corp. Moves
Into Larger Quarters

NEW YORK — Compuicket Corp. has moved into the Paramount Theatre Bldg., 1501 Broadway. The new quarters will house two IBM 660/60 computers. Compuicket is a subsidiary of Computer Sciences Corp.

Photo Magnetic Systems
Forms Subsidiary

CHICAGO — Photo Magnetic Systems, Inc. has opened a subsidiary, Computer Telephone Co. of Chicago, Inc., at 111 W. Washington St. Offices of the new corporation will be headed by John J. Scanlan and William J. Harte, secretary; and Stanley J. Bialwies, vice president.

General Automation Opens
Ten Sales Offices

ORANGE, Calif. — General Automation, Inc. has announced the opening of ten sales offices to expand marketing of its general purpose computers. The company's national sales force will be controlled from five regional offices.

orders and installations

Northwestern Life Insurance Co., Seattle, Wash., has installed a Univac 9300 computer system for claims processing and risk insurance, statistical reporting and calculation of commissions, preparation of premium notices, and agency reporting.

The Hunter Valley County Council, Sydney, Australia, an electrical utility company, has ordered an NCR Century 100 computer consisting of a 16,000 character memory, paper tape reader, printer, two dual disk units. Intended applications are to replace manually processed data, and cost and expenditure accounting.

Denby's, Troy, N.Y., a department store, has installed a Univac 9200 computer system to be used for sales reports, accounts payable and receivable, and buyer's summaries.

Schreepers ICL, London, has ordered an ICL 4-50 computer system to replace an ICL KDF4 presently in use, as well as IBM 1401 and 1403 computers. Applications intended are marketing and selling, stock and distribution control, production planning, and cost and financial accounting.

Y & S Candies, Inc., Brooklyn, N.Y., has ordered an NCR Century 100 computer system for sales forecasting, labor and production analysis, inventories, control, billing, accounts receivable, and payroll.

Chittenden & Eastman Co., Burlington, Iowa, has ordered an Unisys 9200 computer system to replace tabulating equipment currently in use. Typical applications will be billing, invoicing, and sales analysis. Delivery is scheduled for this month.

The James E. Cray Co.-Coke Products Plant, Birmingham, Ala., has ordered a Unisys 9400 computer system to service its 63,000 retail outlets. Original applications will include route accounting and control, route optimization, and general administration. Delivery is scheduled for next fall.

Six of the Province of Quebec's 11 provincial government operated commercial colleges have ordered their Federal Systems Division, Osgoode, N.Y., where it will be used in a simulation laboratory to study and evaluate prototype aircraft and missiles. One application will be to check out parts of the A7 D/E avionics package. Other applications range from deep space to anti-submarine warfare programs.

The Chat. H. Lilly Co., Portland, Ore., a manufacturer and distributor of fertilizers and weed control products, has ordered a Univac 9200 computer system to replace a 16,000 character memory system currently in use. Delivery is scheduled for this spring.

IBM has installed a North Atlantic Industries multichannel computer interface subsystem in its Federal Systems Division, Osgoode, N.Y., where it will be used in a simulation laboratory to study and evaluate prototype aircraft and missiles. One application will be to check out parts of the A7 D/E avionics package. Other applications range from deep space to anti-submarine warfare programs.

The Chat. H. Lilly Co., Portland, Ore., a manufacturer and distributor of fertilizers and weed control products, has ordered a Univac 9200 computer system to replace a 16,000 character memory system currently in use. Delivery is scheduled for this spring.

IBM has installed a North Atlantic Industries multichannel computer interface subsystem in its Federal Systems Division, Osgoode, N.Y., where it will be used in a simulation laboratory to study and evaluate prototype aircraft and missiles. One application will be to check out parts of the A7 D/E avionics package. Other applications range from deep space to anti-submarine warfare programs.

New OTC Quotation Service Will Speed Data to Brokers

NEW YORK An automated over-the-counter market quotation service, which will speed information to brokers and others, will be built and operated by Bunker-Ramo Corp. under a seven-year contract with the National Association of Securities Dealers.

The NASD, a national organization of some 3800 broker-dealer securities firms, headed by Richard B. Walbert, is charged with the responsibility of regulating the unlisted securities markets and its members and salesmen that do business in this area.

Scheduled for 1970

Called Nasdaq, the computer network for OTC quotations is scheduled to become operational in late 1970. It will initially provide quotations on about 1500 stocks issued through the network of CRT terminals currently in offices of brokers, retail traders, and market makers in all parts of the country. A market maker is a securities firm

that maintains an inventory in particular stocks and continuously stands ready to buy and sell in these issues. Nasdaq will be capable of handling as many as 20,000 different securities.

"The implementation of this system will provide the quantity and quality of OTC trading information that has been long sought for the investing public," said NASD President Richard B. Walbert.

Walbert pointed out that in addition to relieving many of the present burdens connected with supplying over-the-counter quotations information, newspaper and radio services will be substituted. More current data for the first time the public will be able to have volume figures and stock indices on the OTC market.

Three Level System

The OTC bid and ask quotations will be entered into the central computers throughout each trading day by hundreds of market makers, designated Level

III subscribers, using special key-sets. The computers will record the entry of each quote on each issue by each market maker. A key-set user (broker/dealer firm) can retrieve a list of all market makers for that issue and the current bid and asked quote of each one of them.

Similar key-sets will be provided to hundreds of retail trading firms executing orders for the public. These firms, all subscribers, will be able to interrogate the computer but will not be able to enter data into the system.

It is expected that the most widely used level of service, Level I, will have a representative quote to approximately 30,000 desk-top units now in use in the sales departments of brokerage offices to obtain listed prices. The use of a representative quote on a particular issue will insure the reliability of the price information received by investors and prevent erroneous quotes. A representative quote is the median of all



Anthony A. Barnett, Bunker-Ramo vice president, demonstrates a prototype terminal for the Nasdaq system for, left to right, Phil E. Pearce, NASD board chairman; E.L. Schmidt, Bunker-Ramo vice president and general manager; and Richard B. Walbert, NASD president.

actual market maker quotes in that stock entered through Level III equipment.

Bunker-Ramo will provide with the data processing computer a computer center to be located at Trumbull, Conn. and other communication centers to be located in major cities and tied to the main computer center.

In addition to supplying quotes to those involved in trading, the Nasdaq system will furnish the NASD itself with summary reports of its activities and will submit end-of-month reports to newspapers and wire services.

A byproduct of the system will be an hourly updated OTC market index.

Twelve Frieden Flexowriters with 80 column card reader. Contact, Henry Miller, Middletown, Connecticut, 347-6956, for additional information.

WANTED

IBM 1401
12K 4 Tapes
Adv. Prog.
DATA
2707 Green Road
Palo Alto, Calif. 94303
Ph. 415-327-8225

IBM KEYPUNCHES-SALE/LEASE/RENT
AVAILABLE IMMEDIATELY
(In quantities)
Also available all other IBM
unit record equipment.
UNIVERSAL PROCESSING
CORP., SALEMSEN &
BROOKINS, SCHENECTADY,
2208 Highway Parkways,
Roselle, N.J. 07203
201-241-7422

DIGI DATA FOR SALE
Digi Data paper tape trans-
mission unit and paper tape
to magnetic tape conversion
unit. Contact: Henry Miller,
1912 Bldg., Middletown, Conn.,
347-6956.

**IBM KEYPUNCHERS
WANTED**
Largest buyer of 026's on West
Coast. We need Univ. Record
Equipment. We buy, sell, rent,
lease.
DATA RENTALS
3000 N.W. 10th Street,
Los Angeles, Calif.
386-2484

FOR SALE
2-2311 disk storage drive
1-2841 storage control
**THE READING
TRUST COMPANY**
515 PENN STREET
READING, PENNA.
CONTACT R. GARMAN
215-374-2121

IBM 1401 D.P.S. FOR SALE.

CO5 1401 (12,000 Pos. Storage) with P.S., M.D., etc: 1402,
1403, 1406. Will Sell or Lease. Asking \$71,000. Available
March. Principals please reply to CW 3012.

COMPUTER ACQUISITIONS CO

WANTS
■ COMPUTERS, ALL
MAKES
■ UNIT RECORD
EQUIPMENT
(404) 636-9000 • BOX 29105
ATLANTA, GA. 30329

DIAL-A-FILE (617) 864-8517

An independent brokerage and advisory service for present and potential users of multiprogrammed systems and on-line systems. For information without obligation, write to our free newsletter:

13 Forest St.
Cambridge, Mass. 02140

TLW

Pays for or purchases inspection
of its unit record equipment
and computers. Equipment completely recom-
mended and under M/A.
TLW Computer Services
P.O. Box 30329 (404) 461-1895
(See our Computer Center,
page 5)

FOR SALE

IBM 082
IBM 402
IBM 514
IBM 602
PARK SILK CO., INC.
225 N. NINTH ST.
LEBANON, PENNA. 17042
(717) 272-4674

FOR SALE

IBM 047 M/A \$5,450
IBM 048 M/A 1,750
IBM 056 M/A 2,450
IBM 029 M/A & A22 3,850
IBM 557-3 M/A 8,750
IBM 082 M/A 1,850
IBM 5194/A 2,250

International Computer
Equipment, Inc.
1130 New Hampshire Ave., N.W.
Washington, D.C. 20007
(302) 650-5336

IBM
• second generation leases
• 20% to 60% off IBM rentals
• 12 to 30 month leases
• 1401's, 1410's, 7070's,
7074's

**SUMMIT COMPUTER
CORPORATION**
785 Springfield Avenue
Summit, New Jersey 07901
201-273-0800

SCC

WANTED
• IBM 1401, 7074
• 360-30, 360-40, 360-50
systems
• with or without disks or
tapes
• state spec. and availability

**SUMMIT COMPUTER
CORPORATION**
785 Springfield Avenue
Summit, New Jersey 07901
201-273-0800

SCC

WANTED
• IBM components
• printers
• card read punches
• tape drives
• disk drives (all models)
state availability

George S. McLaughlin
Associates, Inc.
785 Springfield Avenue
Summit, New Jersey 07901
201-273-6464

gsm
• Computer Leasing
• Computer Dealer
• Computer Brewer

**TOP PRICES PAID FOR
IBM KEY PUNCH EQUIPMENT**
SELL NOW - DELIVER LATER
OMTRONIC RENTAL CORP.
5215 N.W. 10th Street, Miami, Fla. 33126
(305) 451-5000
A/C 312 92-4700

UNIVAC 9300 tape system for immediate delivery under
2-5 year lease. Attractive
monthly rental. 16K, 4 tape
drives, card read punch, 1200
lines a minute. Call (305) 451-5000
Nogueras at (305) 931-6500

FOR LEASE

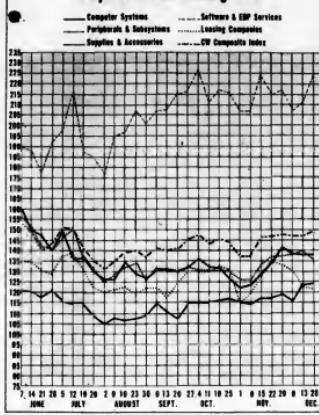
IBM 1410 40K Tape System,
With 16K disk storage. First
month net rent, IBM rental is
\$7,065.00. Summit Computer
Corporation, 785 Springfield
Avenue, Summit, New Jersey
07901 (201) 273-6900

SCC

**SELL
YOUR...**
Used Equipment
Keypunching Services
Lasing Services
Consulting Services

**BUY
SELL
SWAP**

Computer Stocks Trading Index



BASE FOR EACH STOCK INDEX: 100 = 3/1968

COMPUTER STOCKS: TRADING SUMMARY

WEEK ENDED DECEMBER 20, 1968

EXCHANGE	BASE PRICE	1968 3-1-68	1968 3-1-68	CLOSING PRICE	COMPUTER SYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	WEEK % CHANGE FROM BASE
NYSE	183 3/8	233-1/2	237	238 1/2	Borroughs	+ 1 5/8	+ 2.42	+ 9.22
NYSE	67 3/4	119-1/2	94	74	Collins Radio	- 3 3/4	- 2.80	- 64.59
NYSE	101 1/2	97-1/2	94	34	Control Data	- 3 1/2	- 3.14	- 67.50
AMEX	101 1/2	77-1/2	89	174 1/2	Computer Equipment	- 1 5/8	- 6.87	+ 59.91
NYSE	8 1/4	97-1/2	25	23 1/2	Electronic Assoc.	- 7/8	- 7.40	- 28.91
NYSE	60	91-1/2	89	55 1/2	General Electric	+ 3/4	+ 0.66	+ 45.54
NYSE	93 1/8	164-1/2	116 1/2	112	Honeywell	+ 5 1/2	+ 1.74	+ 11.61
NYSE	248 1/2	370-1/2	260	222	IBM	+ 1 1/2	+ 0.56	+ 3.28
NYSE	103 7/8	153-1/2	32	7/8	INTEL	- 1 1/4	- 2.59	- 0.27
NYSE	48 7/8	93-44	47	34	RCA	+ 1/8	+ 0.26	+ 27.36
OTC	39 1/2	72	32	45 1/2	Raytheon	+ 1 1/2	+ 3.78	+ 11.11
NYSE	78 3/4	114-1/2	72	95 1/2	Sci. Control Corp.	- 1 3/8	- 1.48	+ 24.43
NYSE	46	148-1/2	48	178	Scientific Data	- 1 1/2	- 3.04	+ 5.94
AMEX	22 1/2	35	20	27	Spiry Rand	+ 1/2	+ 0.56	+ 5.44

EXCHANGE	BASE PRICE	1968 3-1-68	1968 3-1-68	CLOSING PRICE	COMPUTER SYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	WEEK % CHANGE FROM BASE
NYSE	58 3/8	91-5/8	72	72 1/2	Adressograph-Multigraph	- 5 3/8	- 4.14	+ 24.20
OTC	17 1/2	102-1/2	30	28 1/2	Anaheimatic	+ 3 1/2	+ 4.17	+ 25.14
NYSE	29	43-1/2	28	28 3/8	Bell & Howell	+ 3	+ 1.26	+ 23.23
OTC	17 1/4	42-1/2	20	17 1/2	Bolt, Beranek & Newman	+ 1/4	+ 17.39	+ 17.38
NYSE	33 1/2	127-1/2	30	27 1/2	CalCom	+ 1/4	+ 1.46	+ 26.71
AMEX	30 1/8	50-27	27	36 5/8	Cognitronics	- 1 3/4	- 4.49	- 32.04
OTC	14 1/2	49-1/2	37	37	Computer Equipment	+ 1/2	+ 0.51	+ 23.33
AMEX	15 1/4	23-13	23	23 2/4	Computer Products	+ 2	+ 1.19	+ 15.16
OTC	39 1/2	27-10	20	17 1/2	Electronics	- 2 1/2	- 10.67	- 0.49
OTC	10	29-14	14	14	Electronic Memories	+ 1/2	+ 1.16	+ 61.28
OTC	10	29-14	14	14	Electronic Test	- 2 3/4	- 7.01	- 76.97
OTC	12 1/2	65-16	36	16 1/2	Farrington Mfg.	+ 2 1/2	+ 9.52	+ 90.00
AMEX	16 7/8	92-14	27	37 3/8	General Electronics	- 7/8	- 1.23	+ 22.61
OTC	74	108-54	70	70 1/2	Mohawk Data Sciences	- 3	- 2.25	+ 76.72
OTC	18	42-16	11	31 1/2	Optical Scanning Corp.	+ 1/2	+ 2.37	+ 57.00
OTC	25 5/8	38-10	30	31 1/2	Potter Instrument	+ 1	+ 0.83	+ 18.05
OTC	40 1/4	22-14	22	22	Riviera Electronics	+ 2	+ 2.53	+ 91.30
AMEX	16	29-14	22	22	Riverside Electronics	+ 3/8	+ 1.25	+ 31.16
NYSE	44 1/8	58-42	60	60 1/2	Sanders	+ 1/2	+ 0.84	+ 70.21
OTC	48 1/2	102-14	34	34	Sparta Corp.	+ 1	+ 0.56	+ 6.66
OTC	49 1/2	321-27	27 1/2	27 1/2	Tally Corp.	+ 1/2	+ 0.18	+ 12.80
NYSE	238 3/8	229-22	229	229	Xerox	-	-	-

EXCHANGE	BASE PRICE	1968 3-1-68	1968 3-1-68	CLOSING PRICE	PERIPHERALS & SUBSYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	WEEK % CHANGE FROM BASE
OTC	48 1/4	52-37	41 1/2	41 1/2	Adressograph-Multigraph	- 5 3/8	- 4.14	+ 24.20
NYSE	32 1/2	32-18	20	19 1/2	Acme Visible	- 1/2	- 0.41	+ 14.50
OTC	13 1/2	38-18	18	18	Adams-Milner	- 7/8	- 4.14	- 1.22
OTC	13 1/2	38-18	18	18	Admiral-Brown & Forms	+ 2 1/2	+ 13.82	+ 126.44
AMEX	27	44-21	27	27	Berry Whiting	- 1/2	- 3.70	- 1.14
OTC	31 1/4	40-26	35	35 1/2	Bell & Howell	- 1/2	- 1.43	+ 3.80
OTC	31 1/4	40-26	35	35 1/2	Bell & Howell	- 1/2	- 1.43	+ 3.80
NYSE	64 1/8	119-81	108 1/2	108 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
NYSE	58	93-48	87 1/2	87 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
OTC	57 1/8	49-24	49 1/2	49 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
OTC	31 1/4	86-40	48 1/2	48 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
NYSE	57 3/8	86-40	88 1/2	88 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
AMEX	14 3/4	28-18	20 1/2	20 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80

EXCHANGE	BASE PRICE	1968 3-1-68	1968 3-1-68	CLOSING PRICE	SUPPLIES & ACCESSORIES	WEEK NET CHANGE	WEEK % CHANGE	WEEK % CHANGE FROM BASE
OTC	48 1/4	52-37	41 1/2	41 1/2	Acme Visible	- 1/2	- 0.41	+ 14.50
NYSE	32 1/2	32-18	20	19 1/2	Adams-Milner	- 7/8	- 4.14	- 1.22
OTC	13 1/2	38-18	18	18	Admiral-Brown & Forms	+ 2 1/2	+ 13.82	+ 126.44
AMEX	27	44-21	27	27	Berry Whiting	- 1/2	- 1.43	+ 3.80
OTC	31 1/4	40-26	35	35 1/2	Bell & Howell	- 1/2	- 1.43	+ 3.80
OTC	31 1/4	40-26	35	35 1/2	Bell & Howell	- 1/2	- 1.43	+ 3.80
NYSE	64 1/8	119-81	108 1/2	108 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
NYSE	58	93-48	87 1/2	87 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
OTC	57 1/8	49-24	49 1/2	49 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
OTC	31 1/4	86-40	48 1/2	48 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
NYSE	57 3/8	86-40	88 1/2	88 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80
AMEX	14 3/4	28-18	20 1/2	20 1/2	Berry Whiting	- 1/2	- 1.43	+ 3.80

EXCHANGE	BASE PRICE	1968 3-1-68	1968 3-1-68	CLOSING PRICE	SOFTWARE & EDP SERVICES	WEEK NET CHANGE	WEEK % CHANGE	WEEK % CHANGE FROM BASE
OTC	7 1/2	72	57	57	Advanced Computer Techniques	-	-	+ 73.25
OTC	17	38-30	14	14	Applied Data Research	+ 3 3/8	+ 28.80	+ 20.81
OTC	15 1/2	38-30	14	14	Automatic Data Processing	+ 3 3/8	+ 1.02	+ 27.98
AMEX	47	75-42	74 1/4	74 1/4	Automatic Data Processing	- 1/2	- 1.23	+ 26.65
OTC	4 1/2	20-16	14	14	Computer Applications	- 1/2	- 1.23	+ 31.11
AMEX	22 7/8	43-21	21 1/2	21 1/2	Computer Applications	- 1/2	- 1.23	+ 31.11
OTC	5	15-7	15	14 1/2	Computer Environments	- 1/2	- 1.34	+ 69.00
OTC	30	100-50	50	50	Computer Environments	- 1/2	- 1.34	+ 63.33
NYSE	40	44-36	37 1/2	37 1/2	Computer Environments	- 3 7/8	- 6.35	+ 23.21
OTC	39	68-26	44	44	Computer Environments	+ 1/2	+ 1.15	+ 12.82
OTC	12 1/2	40-26	26	26	Computer Environments	+ 3 1/2	+ 15.55	+ 273.59
OTC	14 1/2	20-16	10	10	Computer Environments	+ 1/2	+ 2.00	+ 34.46
OTC	17	38-30	14	14	Computer Environments	- 1/2	- 1.23	+ 31.11
OTC	35	68-32	64	64	Computer Environments	- 2	- 3.09	+ 8.66
OTC	5	28-14	23	23	Computer Environments	+ 1/2	+ 1.40	+ 42.49
AMEX	31	61-26	48	60 7/8	Computer Environments	+ 1/2	+ 0.61	+ 96.37
OTC	9	14-6	6	6	Computer Environments	+ 1/2	+ 4.76	+ 16.99
OTC	42 2/8	94-56	84	84	Computer Environments	+ 1	+ 2.32	+ 49.18
OTC	12	42-26	26	26	Computer Environments	+ 1/2	+ 2.60	+ 46.07
OTC	62	162-97	170	170	Computer Environments	+ 2	+ 1.19	+ 16.94
OTC	43	10-6	6	6	Computer Environments	+ 1/2	+ 2.29	+ 32.50
OTC	43	30-19	19	19 1/2	Computer Environments	- 1	- 1.72	- 35.00

EXCHANGE	BASE PRICE	1968 3-1-68	1968 3-1-68	CLOSING PRICE	LEASING COMPANIES	WEEK NET CHANGE	WEEK % CHANGE	WEEK % CHANGE FROM BASE
OTC	18	55-18	48 1/2	48 1/2	Boebling Computer	- 6 1/2	- 33.00	+ 141.67
OTC	1 1/4	26-21	21	21	Computer Exchanges	- 1	- 6.47	+ 211.13
AMEX	28 1/8	47-32	32	32	Continental Computer	- 3/8	- 1.87	+ 77.77
OTC	18 3/8	15-9	15	15	Continental Computer	- 1	- 6.67	+ 62.50
OTC	10 1/2	30-22	22	22	Cybertron Financial & General	- 3	- 28.49	+ 12.88
OTC	12 1/2	17	6	17 1/2	Debtors Computer	- 1 3/4	- 5.20	+ 165.00
OTC	13 1/4	26-19	19	19	Debtors Computer	- 1 3/4	- 5.20	+ 165.00
AMSE	29 3/4	43-25	27 3/4	27 3/4	Groundhog Computer	+ 3/8	+ 8.67	+ 54.22
OTC	18 1/8	36-26	36	36	Grand Equipment Leasing	- 1/2	- 2.78	+ 76.00
OTC	9	14-6	6	6	Lease Computer Leasing	+ 1/2	+ 16.67	+ 16.67
OTC	10 7/8	16-10	13	13	Lease Computer Leasing	+ 1/2	+ 2.33	+ 77.29
OTC	10 7/8	16-10	13	13	Lease Computer Leasing	- 3/4	- 5.17	+ 26.44
OTC	4 1/8	53-23	23	23	National Equipment Rental	+ 1	+ 2.62	+ 12.32
OTC	13 1/4	35-26	26	26	National Equipment Rental	+ 2	+ 6.20	+ 27.36
OTC	38	64-35	40 3/4	40 3/4	Randcom Computer Corp.	+ 3/8	+ 8.01	+ 22.54
OTC	10 1/8	53-30	49	49	System Computer Corp.	- 1 3/4	- 8.04	+ 366.67
OTC	10 1/8	53-30	49	49	U.S. Leasing	-	-	-

* Since 10/18/68 *Companies included in Computerworld's stock trading index for each sector.

CAI Project Goes to SDC

SANTA MONICA, Calif. — The Air Force Electronic Systems Div. has contracted with System Development Corp. to develop a computer based training program for the Personnel and Data Automation System. The training system will provide on the job instruction for military users, operators, and managers. Lesson designs will construct material to be read and interact in a mode at remote communications terminals tied to a Burroughs B3500 computer system. A trainee will have the option of selecting material to be viewed during the teaching session by lesson, subject, and purpose of the session. Text material and

CONTRACTS

quizzes will be presented to the trainee at the remote terminal and his responses recorded and evaluated by the program.

System. Work will be done at CSC's Huntsville Operations Center and at the Sentinel System Command headquarters. CSC will perform the operational support of the computer system, develop financial and technical information for users, and write the computer programs to make the system operational, using the Cogen system.

DDS Wins PMS Award

COLLEGE PARK, Md. — Photo Magnetic Systems, Inc. has awarded a \$100,000 contract to Delta Data Systems, Inc. to develop time sharing applications for credit checking, order entry, and general accounting.

KEY DATA PROCESSING PERSONNEL

FOR AN EXPANDING NATIONAL ORGANIZATION
RESPONSIBLE AND AGGRESSIVE—PROFIT ORIENTED PERSONNEL
NEEDED TO COMPLIMENT OUR ACTIVITIES IN:

- DATA PROCESSING CENTERS
- COMPUTER SYSTEMS
- COMPUTER FACILITY MANAGEMENT
- PACKAGE SOFTWARE PROGRAMMING

ORGANIZERS OF READYSYS III
STERLING COMPUTER SYSTEMS, INC.

Write Dept. P-2, 3306 Montrose Boulevard, Houston, Texas 77006

COMPUTERWORLD "COMPUTERWARE" CLASSIFIED SECTIONS

For more information or to place an ad, call or write Computerworld Classified Department, 60 Austin St., Newton, Mass. 02160 (617) 332-5606

SOFTWARE FOR SALE

Purpose —

- To provide a low cost marketplace for general and specific purpose program package for the benefit of both buyer and seller.

Rate Information —

- Rates per column inch 1-13/16" wide:
 - 1 Col. inch 14.00 per week
 - 2 Col. inches 28.00 per week
 - 3 Col. inches 35.00 per week
 - 4 Col. inches 42.00 per week
 - 5 Col. inches 49.00 per week
 - 6 Col. inches 56.00 per week
 - 7 Col. inches 63.00 per week

Minimum order 13 weeks (prepaid); less than 13 weeks rate is \$14.00 per column inch; maximum ad size 7 column inches; sold only in even inches (no fractions).

Format —

- Headline
- Description of package use and configuration.
- Price: (Optional)
- Contact information
- No special borders, no reverses
- Logos allowed

TIME FOR SALE

Purpose —

- To provide at low cost a regionalized listing of available computer and machine time, time-sharing services, etc.

Rate Information —

- Rates per column inch 1-13/16" wide:
 - 1 Col. inch 14.00 per week
 - 2 Col. inches 28.00 per week
 - 3 Col. inches 35.00 per week
 - 4 Col. inches 42.00 per week

Minimum order 13 weeks (prepaid); less than 13 weeks rate is \$14.00 per column inch; maximum ad size 4 column inches; sold only in even inches (no fractions).

Format —

- Headline
- Information about system or service.
- Price: (Optional)
- Contact information
- No special borders, no reverses
- Logos allowed

SOFTWARE WANTED

Purpose —

- To provide at low cost a place where a user or software house can make known to the computer community a general or specific software need.

Rate Information —

- Open rate \$18.20 per column inch (1-13/16" wide).
- Minimum size 1 inch.
- No maximum size.
- Minimum number of insertions — 1.
- Lineage discounts apply to large ads for long runs.

Format —

- Unspecified
- Borders allowed
- Headlines allowed
- Reverses allowed
- Logos allowed

BUY SELL SWAP

Purpose —

- To provide at low cost a general marketplace for equipment, systems, services, supplies and the like for the computer community.

Rate Information —

- Open rate \$18.20 per column inch (1-13/16" wide).
- Minimum size 1 inch
- No maximum size
- Minimum number of insertions — 1.
- Lineage discounts apply to large ads or long runs.

Format —

- Unspecified
- Borders allowed
- Headlines allowed
- Reverses allowed
- Logos allowed

Recruiting Requires Delicate Handling

By Sam Wilder
Vice President
Career Consultants, Inc.

Probably the most competitive personnel market in the country today is for engineers and EDP oriented people. The demand for qualified personnel in most professional disciplines seems insatiable, and the competition for those persons available is un-

precedented. There just are not enough persons with the required disciplines available, and, as a result, a situation has developed that, if it were not so serious, would be ludicrous. Highly qualified people are playing a very profitable game of musical chairs, and this situation is extending through all echelons of professional disciplines.

While many plans have been

conceived by companies and professional recruiting firms to attempt to alleviate this situation, no one company as yet has come up with a complete program that has been organized, planned, and executed with sufficient aplomb to have any great overall effect on the market.

Knowing Where to Look

All individuals in the personnel recruiting field today are or should be cognizant of the geographical areas in which specific disciplines have been located. In many instances this type of operation has been carried on with the sophisticated use of market research study, especially in those cases where highly specialized disciplines are required.

Knowing where to look, however, is only of little value if the plan is not well planned, organized, and coordinated. A program has not been developed to effectively recruit the qualified personnel. Execution of such a program from the method of establishing first contact to the offering of the offer is of equal importance and has to be handled accordingly. The method of execution to contact applicants within any given geographical area, and they vary depending upon company, circumstances, and conscience. Regardless of methods, however, the problems of planning, coordination, and communications are rather parallel.

Recruiting Out of Town

For example, in the company or recruiting firm has a recruiting team traveling on a national basis it is not just a problem of supporting this team in the field with local newspaper and trade journal advertising, direct mail, and the like, that any potential applicants in the area. The problem lies in the method in which the prospective applicants are recruited and handled once the basic information is received by the home office.

Of course, one of the most efficient and effective methods is to have personnel traveling with the team who have the authority to make on the spot offers. The advantages of such an operation are obvious.

Timing is Critical

If this method is not feasible, however, the timing of the presentation and distribution of resumes and decisions as to interest or no interest are of vital importance, because time in this respect is no longer a commodity for employment.

Once it has been determined that there is interest in a resume, the process of contacting, setting up a mutually convenient time for plant interviews, and arranging for the interview should proceed prior to presentation of many potential applicants become disenchanted with companies because of shoddy handling of these basic arrangements. Above all, any information that is to be given to an applicant should be briefed on the individual's experience and background, and the position for which he is being considered.

As soon after the interview as possible, the applicant should be notified as to whether there is interest or not. To allow an applicant just to hang for two weeks after the interview is almost certain to cause him to lose interest in a company, and in speaking with friends and associates his comments can adversely affect the opinions of other potential applicants.

Follow-Up Is Important

Even though every aspect of the recruiting effort and the individual involved has been well directed, the overall effort cannot stop at this point, or again potential applicants will be lost.

Establishment of a firm timetable for a buy or no-buy decision is of great importance. Once an applicant has been interviewed, the applicant should never leave an interview without being given a definite date by which he can expect to be notified, and this date must be kept.

If possible, prior to the interview, a general letter about the company with a brochure and, if feasible, information on the

local community, should be sent to the applicant. If time does not permit this prior to the interview, it certainly should be included in the letter acknowledging the interview.

Applicant Is the Buyer

Exceedingly well organized and planned programs as outlined above will have degrees of success, depending upon the forcefulness with which they are pursued. The one element that is overlooked in so many programs is the psychological approach or attitude of the individuals at every management level involved in the recruiting effort.

Anyone who has any contact with a prospective applicant should realize that today the applicant is the buyer and the company is the seller. This includes the full ramifications of this fact exhibited in dealing with applicants and to achieve the maximum results desired, regardless of other elements, any recruiting program has to be endowed with the seller's approach - above all, common courtesy and respect for individual dignity.

Acquisitions

Brandon Applied Systems Forms New Company

NEW YORK — Dennis Brandon Computer Services, Inc. — a new company formed by Brandon Applied Systems, Inc. and Dennis Business Systems, Inc. — has been incorporated with an authorized capital of \$5 million and a paid-in capital of five million shares of common stock of \$1 par value.

The new company will be headquartered in Dallas, according to Dick H. Brandon, president of Brandon Applied Systems, Inc.

Dearborn Acquires

Muchowich Marine
CHICAGO — Dearborn Computer Corp. announced an expansion of its operations in the offshore oil industry with the signing of an agreement to acquire the Muchowich Marine Service, Inc., Freeport, Texas, for an undisclosed amount of Dearborn Computer stock.

The acquisition will be treated as a pooling of interest basis. According to Arthur Weis, Dearborn president, Muchowich Marine will be operated as a wholly owned subsidiary.

Planning Research Acquires H.B. Maynard

NEW YORK — Planning Research Corp. announced that its shareholders have voted in favor of the acquisition of H.B. Maynard & Co., a Pittsburgh based management consulting firm.

The merger agreement involves an initial payment by Planning Research of 245,000 shares of Planning Research common stock per share of H.B. Maynard. Maynard can receive up to 245,000 additional shares, the number to be determined by its earnings over the next four years.

University Computing Acquires Hunter Assoc.

DALLAS — Hunter Associates, Inc., a consulting engineering firm, has merged with University Computing Co., according to a joint announcement by Homer A. Hunter, president of Hunter, and Sam Wylie, president of UCC.

Terms of the merger were not detailed but involved an exchange of University Computing stock for the privately held assets and business of Hunter.

Informatics to Buy 70% of Dataplan

SHERMAN OAKS, Calif. — The Interpublic Group of Companies and Informatics, Inc. have agreed in principle to the joint operation of Dataplan, Inc. as a provider of computer services in the marketing communications field.

Informatics will purchase a 70% interest in Dataplan, an Interpublic Group subsidiary, for \$100 million. Informatics retains 30% ownership. Dataplan will continue to be operated in New York as a separate company.

According to Dr. Walter F. Becker, Informatics' president, the transaction is subject to final agreement and approval by the boards of directors of both companies.

Louis Berger Inc. Acquired By Leasco in Stock Swap

GREAT NECK, N.Y. — Leasco Data Processing Equipment Corp. says it has acquired all the outstanding stock of Louis Berger Inc., East Orange, N.J., for \$30 million in Leasco common stock.

Berger is a privately owned firm that performs engineering, planning, and architectural services.

POSITION ANNOUNCEMENTS

Data Processing Professionals BRANCH MANAGERS' POSITIONS

Dynamic young organization is seeking experienced managers, sales or systems representatives to join Data Processing Consultants in the rewarding field of EDP personnel placement services.

Professional managers, sales and systems representatives formerly with nationally recognized data processing companies staff our present offices.

Compensation is outstanding and profit participation and stock options are immediately available.

DPC, the placement firm for data processing personnel, is now expanding its operation in many major cities. For complete details contact:

DATA PERSONNEL CONSULTANTS

Joseph Falvey / 224 Westover Street / Providence, R. I. 02903 / (401) 254-7200
or any of our East Coast Managers

Michael Bonsu / 1274 Main Street, #1 / New Haven, Conn. 06510 / (203) 782-7200

Dan Rose / 40 Hickory Drive / Newark, Mass. 01824 / (508) 822-4540

Paul Reland / 100 Constitution Plaza / Hartford, Conn. 06102 / (203) 522-4540

Donald Weisley / 111 East Avenue / Newark, Conn. 06510 / (203) 822-4540

COMPUTER OPPORTUNITIES

at PIPER AIRCRAFT CORPORATION

Expansion of our Data Processing Department has created several opportunities for:

SYSTEMS ANALYSTS PROGRAMMERS — ALL LEVELS OPERATIONS SUPERVISORS

EDUCATION — OPENINGS

I.B.M. System 360 disc/tape experience extremely helpful. Competitive fringe benefits plus liberal flying privileges.

Contact: C. DAN HASBROUCK
PIPER AIRCRAFT CORPORATION
P.O. Box 1238
VERO BEACH, FLORIDA 32960
(305) 667-4361, ext. 221

PROGRAMMER

Leading foreign automobile distributor with record of phenomenal growth, located in pleasant suburban community only 20 minutes from George Washington Bridge. Looking for ambitious, personable, programmer interested in stimulating new projects, an opportunity for rapid advancement. About 5 years data processing experience desired. Minimum of 2 years COBOL, minimum 300 Data experience. Minimum 6000 hours excellent working conditions, fully paid benefits and other fringes. High starting salary. Send resume in confidence to CW Box 3011.

Software Development

Ground floor opportunities are available in a newly formed software subsidiary of a public corporation.

Stock options available to individuals with proven capabilities in more than one of the following:

- Engineering (Scientific Applications)
- Compilers
- Commercial Applications
- Real Time/Time Sharing Systems

Send resume in complete confidence including salary requirements to CW Box 2013



Visual Communications Terminal at the Manned Spacecraft Center in Houston displays mission data in real-time.

Computers Form Lifeline For Apollo 8 Moon Shot

(Continued from Page 1)

The Manned Spacecraft Center in Houston has a computer complex which processes mission information for displaying flight controllers. The entire process, from spacecraft to console, takes less than 10 seconds.

GE Eliminates President's Position

NEW YORK — General Electric no longer has a president, and it doesn't intend to elect one.

Fred J. Borch, formerly president and chief executive officer, has been succeeded by another chief executive officer, Borch, together with three new vice chairmen, will constitute the "corporate executive office."

The new vice chairmen and executive officers, formerly executive vice presidents, are William H. Denner, Jack S. Parker, and Herman L. Weiss.

The change made by the board of directors Dec. 12, 1968, was the most recent reorganization in less than a year. Last Jan. 1, the "president's office" was created. "Though the position of vice

chairman is not new to General Electric," Borch said, "there is no precedent for vice chairmen who are, in addition, executive officers of the company."

"Our own research and the research of others support the need for innovative structuring beyond the traditional concept of the chairman and president positions."

In his column, Morgan starts off by comparing the operation of computers with the Luddite rebellion in England at the beginning of the industrial revolution. He refers to the rough parallel which some observers draw between the current violent protests against social and political assaults on our social and political institutions and the writings of factory owners during the Luddites in the last century. He then comments about the reprisals by the property owners against the Luddites, which he describes as "grind and smash." Morgan then moves up to date by pointing to the activities of the student militants who are assaulting the educational establishments and to the research and development of "human values" made by both blacks and whites who blame this on the power structure of America society.

Machine Villain

At this point he introduces the computer for the first time as

the project Mac computers at MIT. Of the 24 students who participated in the experiment, 60% thought they were conversing with a man. The remaining 40% were unable to decide who or what they were talking to.

One girl, who had decided she was conversing with a graduate student, accidentally fractured her arm by banging on the terminal when she became frustrated at the wrong answers she received from the "graduate student".

Another girl became a little puzzled when the computer typed "CTSS not an operation, must be gone for a coffee break," the girl thought. The girl waited patiently until the system went back into operation. "He's finished his coffee and is back," she was reassured.

The experiment was reported in the *MGH News*, the hospital's newspaper.

Computers Need Watching Noted Columnist Tells Publ.

Special to Computerworld

NEW YORK — Commentator Edward P. Morgan, in a syndicated column distributed by the Fall 1968 Computer Conference, told his readers that "whatever their function, computers are going to have to be watched."

Morgan came to his conclusion after getting an unusually "inside" view of the problems and possibilities of computers as he worked with industry leaders and experts on both a television discussion and a public presentation of the social impact of computers. Observers were impressed by his interest in the presentation of the arguments by such people as Dr. Alan Weiss, Dr. Robert M. Coates, and Dr. Robert Hofstadter, and felt his opinions could well be important for future decisions on how the computer profession would be regulated by the public at large.

Luddites Recalled

In his column, Morgan starts off by comparing the operation of computers with the Luddite rebellion in England at the beginning of the industrial revolution. He refers to the rough parallel which some observers draw between the current violent protests against social and political assaults on our social and political institutions and the writings of factory owners during the Luddites in the last century. He then comments about the reprisals by the property owners against the Luddites, which he describes as "grind and smash." Morgan then moves up to date by pointing to the activities of the student militants who are assaulting the educational establishments and to the research and development of "human values" made by both blacks and whites who blame this on the power structure of America society.

Machine Villain

At this point he introduces the computer for the first time as

"another machine villain." He points out that to many it represents a dehumanizing threat to society, to others, to engines and mechanized looms. He states further that it is a growing threat because data processing can be expected to match or surpass the motor car industry in size by 1975.

Warnings Brought Out

Talking about the panel discussion on the social impact of computers, Dr. Weiss ("Computers had already invaded personal pri-

vacy"), Dr. Methane ("Congress had failed to exercise proper responsibility"), Dr. Edgar Hoover ("...and Dr. Methane's comment that an idea of Dr. Hofstadter for a committee experiment in 'instant democracy' would be dangerous and impractical. He concludes with the final comment that "whatever their function, computers are going to have to be watched."

Dr. Morgan's column appears in about 100 newspapers across the country.

Software Patent Appeal Raises '1984' Questions

(Continued from Page 1)

pointed out that the court originally had agreed to have a rehearing and resargument (presumably before the death of Judge Smith) and now asks for it in the grounds of having overlooked the limited nature of the constitutional power under the Constitution.

Change in Position

In at least one respect, however, the Patent Office gives some comfort to the proponents of patenting. It now acknowledges that there is a difference in whether mental processes can be patented and points out that the Supreme Court has yet to pass on the question. Previously the Patent Office opinion was that mental processes could not be patented as "well-established" and did not need to be considered. Observers also expect that the issue of a Software Court panel will be up to the Patent Office to bring to the whole matter to the Supreme Court's attention if it loses the Prater & Wei case before the Court of Patent Appeals.

Thought Control

The question of thought control is introduced in the brief as a statement in the original decision, which reads, "We find nothing to indicate an intent of Congress or the courts to deny patent protection to thoughts, ideas, merely because they could be alternatively performed through the mind by the use of aids such as pencil and paper." Commenting on this, after a glib a statement of thought protection (which it calls "a favorite euphemism of the patent bar"), the brief says that this means that "any thought, idea, or process, or illegal or improper in authorizing the grant of a patent containing process claims of such breadth as to confer upon a patentee the right to exclude others from thinking in a certain manner."

1984 Threat

From this point, the computer programs can take such a bold position, while the brief suddenly waves the flag of freedom — "If freedom of mental thought should not be considered within the safeguard of

the First Amendment, for lack of a broad expression, it is nevertheless available to the people by the Ninth and Tenth Amendments. Indeed, reliance on a Bill of Rights should not be necessary." (See *Computer Federal Papers*, No. 84). A free people could not have delegated to Congress any power to control thought or to prohibit it in any other way. "Well 1984 was not to be our destiny, although such might come to pass if the judiciary is not vigilant."

Public Interest Involved

The brief points out that broad process claims might now be granted conferring the right to exclude people from thinking in a certain manner. The brief adds, "Public interest demands that this question should be more fully argued, and that the only way to do so now is by rehearing."

Interested in leasing a...

IBM 3380

UNIVAC 9000/70/104

CDC 6600

RCA SPECTRA 70

HONEYWELL

Contact National, one of the nation's leading Computer Leasing Companies, for the most favorable long or short term program possible.

NATIONAL

COMPUTER RENTAL, LTD.

A subsidiary of National Equipment Rental, Ltd.

26 Broadway,

New York, N.Y. 10004

(212) 425-7900

SOFTWARE CLEARING HOUSE

If you want to sell proprietary software programs

OR

You are looking for software programs

USE

A professional EDP software clearing house

Contact

AUTOMATED INFORMATION SYSTEMS, INC.

BOX 304

NEEDHAM HEIGHTS 94, MASS. 02194

617-446-2220

Branches in Springfield, Mass. and Ridgewood, New Jersey